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ORIGINAL ARTICLES.

ON THE RELATION OF SEX TO THE PROGNOSIS OF EPILEPSY.

Read in the Section on Neurology and Medical Jurisprudence, at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

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The purpose of this paper is briefly to call attention to a difference in the sexes as regards chances of recovery from the convulsive habit. This is a matter that has not been absolutely overlooked, though it seems to have received scant attention. Only in Gowers have I so far found any original reference to it, and he simply says that, "the prospect of arrest is slightly better in males than in females."

It is unusual for sex to play a very important rôle in those diseases that are common to both male and female. Among epileptics there is no great preponderence of one sex over the other. In my former statistics (to July, 1891)[1] of this disorder there were 84 M. to 66 F. Reynolds found 102 M. to 70 F., but says that "practically, the two sexes appear to be about equally affected." Some later statistics indicate a slight excess of females, but this is disputed. And it should not be overlooked that males are more exposed than the opposite sex to accidents provocative of epilepsy. At any rate in my own series the numbers of the two sexes have not varied sufficiently to account for any considerable difference in results. At most this has but a relative bearing on the subject in question.

It is of course true, that a great majority of epileptics are but little amenable to treatment. Nevertheless this does not hold for selected cases. If the trouble occurs in a young male (youth or early manhood) and is taken promptly in hand, and if the case does not show organic lesion or too many marks of degeneracy and can be followed up, there is in my experience, a considerable, perhaps an even chance of cure—taking this term in the sense of cessation of seizures for years at least after conclusion of treatment.[2]

In other and less favorable cases in males, there is correspondingly less hope of cure, though it is now and then possible. The relief of weak heart, ear troubles, gout, the expulsion of tape worms, etc., and sometimes more direct medication will give an occasional cure.

If, now, we compare with this showing in males, the results obtained in females, we find, in my experience, one long line of failures. In dispensary practice there has hardly been an exception to this.[3] True, we can give some relief and occasionally think we are to effect a cure. In some cases of digestive or cardiac disturbance, that have been attended by one or two seizures, evidently but symptomatic in nature, we may even see a complete cessation. And the like may hold for an occasional case of so-called reflex origin. But in any case in the female that could certainly be classed as epilepsy there has been no cure, and only now and then any material amelioration. In private practice, the results have been but little better—the longest free period in any female patient has extended but one year.

Therapeutically, not only has the same plan been tried as in the males, but also various modifications of it with the hope of better suiting the female.

The same fact appears casually in the paper to be presented here by my colleague, Dr Barber. He soon had to give up his trial of *solanum carolinense* in the case of females, because of its entire failure, while in the boys there has been sufficient benefit to enable him to continue observation.

In view of these facts, the unsatisfactory outcome can hardly be attributed to a poor adaptation of treatment. In seeking an explanation I have come across a few things having apparently some bearing thereon, though even if related or parallel matters they serve quite as much to verify as to explain.

In the first place it may be recalled that any intoxication habit (for alcoholics, narcotics, or what not) is less tractable in women than in men. It is, alas, little enough so in either. Under institutional care this may not be apparent, but in private cases one soon has to recognize this fact.

Again, my service at the Kings County Hospital includes a department of some fifty feeble-minded and idiotic children. Last year a party of noble women in Brooklyn started a school for the instruction of these incapables. There it was soon apparent that though the sexes were almost equally represented in the whole number of inmates of that department (twenty-six males to twenty females), the number of girls capable of any real instruction was usually about half that of the boys (thirteen males to six females at this writing). This was the more surprising, as in other mixed schools the girls are pretty uniformly found to be on an average brighter, more studious and conscientious than the boys. But inquiry elicits the information that generally in schools for the mentally defective, the boys are found brighter as scholars and more amenable to training than the girls.

The very kind reply of my friend, Dr. M. W. Barr, Chief of the Pennsylvania Training School for Feeble-Minded Children at Elwyn, is well worth giving:

[1] The Epileptic Interval, etc., New York, 1893.

[2] In a continuous series of thirty-four cases, all males, ranging in age from 11 to 25 years, nine were seen but once, and hence must be deducted. In the remaining twenty-five, many of the above specified conditions were not adequately filled, and yet they gave a record of six definite and five more presumptive cures.

[3] In a continuous series of thirty-four females, covering the same period as the above series of males and with like range in ages, twelve were seen but once, thus leaving twenty-two. Among these there was but one in which there was any question of cure and even this was too uncertain to be so classed.

"We find that the mental improvement is more marked in the boys than in the girls—the ratio of 3 to 2.

"The physical improvement is about equal in both sexes. We find that the mental condition does not always depend on the physical, nor the physical on the mental.

"I do not know any explanation of this, or why the boys are more improvable than the girls, except that the girls are more nervous and less willing to do good honest work than the boys."

These matters seem to have a direct bearing, however difficult it may be to analyze closely, on the main point raised. Perhaps there is some additional force in the fact that a portion of the imbecile class are also epileptics. It would be interesting to know the school ratio, so to speak, of the mental cripples that are free from epilepsy.

On the other hand, a comparison of the gross statistics of recovery in the insane, fails to discover any particular difference in the sexes. Barring the excess of male paretics over female, the chances of recovery are about equal in the two, if we take all forms together (shown by adding up some 15,000 cases from recent asylum reports).

Any attempt to interpret these matters is little more than speculation. It is, however, important to find the true explanation in the case of the epileptic, as on it must depend our treatment to be successful.

(*a*) The suggestion of a "greater strain placed upon females at the age of puberty" (Hare), hardly calls for serious consideration. If such an element exists it must tend rather to produce an excess of epileptics in that sex than to any essential difference in the resulting disease itself.

(*b*) The influence of a possible hysterical factor is better worth attention. I must acknowledge that it has often proved a difficult question to decide on its existence or not in female epileptics. At one visit a case will appear a pure epilesy, and at another the hysterical features will be just as clear. This is a separate matter from hystero-epilepsy; although where the latter in the female proves to be more than transitory, definite epileptic symptoms soon begin to color the case.

With males, on the contrary, my experience is uniformly to the effect that epilepsy and hysterical epilepsy are well separated, *i.e.*, a given case is wholly one or the other.

But the persistent factor in female epilepsy has never been influenced by a regard, therapeutically, to a possible hysterical side, though this is only negative and weak evidence.

(*c*) The power of habit in the female. That this is greater than in the male may be granted. But, even if this applies to acts beyond the influence of the will, it can hardly account for the lesser mental receptivity of the weak-minded female, though this latter may be an entirely separate affair.

(*d*) Finally, it is possible that failure of treatment in the female epileptics depends on some inherent fundamental condition and that we can never expect to make it as successful as in males.

The results of operative treatment have not been considered in this paper, partly because that applies to a special class of cases and partly because there would be too few females for a proper comparison, as well as the great uncertainty in most of the results reported.

So far, we can at least recognize that, while there is a fair chance of cure in the most favorable male cases, we must expect little in the female—and remember it in prognosis.

A CLINICAL NOTE ON THE TREATMENT OF EPILEPSY BEFORE THE HABIT IS FORMED.

Read in the Section on Neurology and Medical Jurisprudence, at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

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Though many links in the chain which would represent the complete pathology of epilepsy are lacking, enough is known to furnish occasionally a clew to rational treatment, and whether our measures may be addressed to some etiologic factor or be symptomatic as the administration of the bromids for the control or diminution of the attacks, it seems fairly evident that in the majority of instances the longer and more frequently the seizures have been occurring the greater will be the difficulty in abolishing them or diminishing their frequency.

In a general way, the influence of long continued recurrence is recognized under the name of habit, and is no doubt to be accorded some importance; for it will scarcely be necessary to adduce illustrations of the influence of habit on many of the functions of the body.

Undoubtedly, in the treatment of epilepsy, more brilliant results will obtain in those cases in which the cause is ascertainable and of such a nature and so situated that it can be efficiently treated, and in particular will we be entitled to expect a successful result if the case comes under observation while still showing only the minor forms of its manifestations; but even when we are unable to direct our measures from an etiologic standpoint, and must rely upon the ordinary routine means, if the treatment be thorough and energetic, begun at an early date and continued for a long period, we may cure some cases that would prove incurable if subjected to treatment at a later date. This applies to the cases subjected to any therapeutic plan, whether surgical (at any point from the vertex to the soles of the feet) or medicinal, as the usual course of the bromids. In these cured cases, however, there is occasionally a lingering doubt that those presenting only the minor manifestations might fail to develop into *le haut mal*, but no one can doubt that a proportion still remains in which if *le petit mal* be relieved the patient is saved from the greater events of the disease.

By way of illustration, I will cite two instances of the minor form, presumably of reflex origin, and associated with that somewhat overworked source of irritation, phimosis.

The first case, a boy about 6 years of age, had for several months been noticed to act peculiarly during urination. That fact was reported to me, and I requested the parents to note carefully the events occurring at that time; the report embraced the statement that he would defer the act as long as was practicable, and then, when about to accomplish it, would seem agitated as by fear; his face would become pale, he would start backward a step or two, his body would become rigid, and there appeared to be a momentary unconsciousness; but as the urine began to escape these symptoms would diminish so that at the completion of the act, or a few moments thereafter, he would be ready to resume his play or studies.

It was some time before I saw the child for exam-

ination, for in response to my inquiry as to the condition of the prepuce, by a mistake I was told that it had been examined and pronounced in a normal condition, but the symptoms becoming more pronounced and the evidence of a brief loss of consciousness becoming stronger, I insisted on seeing the child, and an examination showed a phimosis with a pinhole orifice, and at the incision I found the prepuce strongly adherent to the glands over quite a portion of the surface. For two or three weeks after the incision the symptoms continued, but in a gradually diminishing degree, the diminution apparently keeping pace with an increasing confidence that the old sensations had been removed, and finally the trouble definitively ceased without the administration of drugs.

The other case was that of a lad, 10 years of age, who had shown no trouble prior to seven months of age, aside from measles when five months old. The first signs consisted of slight convulsive seizures, consisting mainly of rigidity of the muscles of the trunk and oscillation of the eyes, though at eight months there was some paræsis of the right side which persisted for quite a period. For about eight years the attacks recurred on the average from three to six times daily, were brief in duration and were not followed by somnolence, but the frequency would be increased during the continuance of intercurrent illness. During the following two years the attacks did not notably increase in frequency, but they became somewhat more severe and were followed by a stupid or drowsy state. The father consulted me concerning him in an incidental way, and I advised that he should have him examined, particularly in reference to natal or post-natal injury to the head and the condition of the genital apparatus, for he described the act of urination as difficult and spasmodic. In the meantime I advised the use of bromids to try and control the habit element. As he lived a long distance from me, I heard nothing from the case for some months, when, being in the neighborhood of his home on another case, I again was consulted, and found a well developed boy of 10, apparently in good health in every way except the convulsive seizures, and some slight defect in the motility of the right side, presumably due to a mild attack of polio-myelitis in his early infancy. There were defective educational development and somewhat peculiar manners, both of which were doubtless in a measure the result of his having been kept from other children and from school.

The bromids had stopped the convulsions for nearly six months, but they had begun to recur. A tight and adherent prepuce furnished one ground for interference and I advised that the phimosis be removed, which was done somewhat later, and thereby he was relieved of his urinary trouble, but after a time the convulsions recurred, and he will probably become a confirmed epileptic, though I am convinced that an early operation and efficient medical treatment, particularly if instituted before the epileptic habit had been formed, would have resulted in a cure.

Another case of reflex influence interested me very much. It occurred in the practice of a medical friend, early in my professional work and before the use of the bromids had become so common. The patient, a man, had had several epileptic attacks, when, during an examination of his body for general diagnostic purposes, and while manipulating one foot a paroxysm occurred. The same event having been repeated at another and not remote occasion, a more critical examination disclosed a small subcutaneous tumor on the dorsum of the foot, and pressure thereon produced a more or less complete epileptic attack. Excision of this growth resulted in a definite recovery.

Another instance will serve to illustrate the importance of thorough measures in the early stages of the disease. A young woman consulted me on account of a single convulsive seizure which had occurred a day or two before. Though realizing fully the fact that a single attack had slight diagnostic value, the description of the fit, as witnessed by a friend, led me to suspect so strongly that it was epileptic that I at once placed her on a bromid treatment with directions to make certain increase in the dose in case of a recurrence. In a short time she had another attack and then another, so that she had several within a few weeks. After each fit the dose of bromid was increased, until finally the intervals increased, and after about three months she had the last attack. The dose of bromid of potash had then reached a little more than 2 drachms daily and was continued at that amount for upward of two years, and then gradually diminished, so that it was stopped at about four years from the commencement of the treatment. This case, like the majority of cases of epilepsy, furnished no evidence as to causation or pathology and was treated entirely on an empirical basis. If the attacks had been allowed to continue for quite a time it is fair to assume that the condition would have become more difficult of control and probably incurable.

I am fully aware that this note contains nothing new, but it has seemed clear to me that the utility of energetic measures in the early stages of the disease has not been adequately urged or appreciated, and it is then, if at all, that we may hope to eliminate one factor, a minor one though it be, in the continuation of the disease, *i. e.*, the element of habit.

THE LIMITATIONS OF SURGICAL OPERATIONS AS A MEANS OF RELIEF OR CURE IN EPILEPSY.

Read in the Section on Neurology and Medical Jurisprudence, at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

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During the past two decades, or the last quarter of the nineteenth century, a vast change has been wrought in the principles governing surgical operations; the use of the microscope has sapped the very foundations of pathology which was taught as late as the early 70's, and in that short space of time, we have witnessed the birth and death of many theories which were advanced with the force of dogmatic emphasis.

In short, our age is one of theories and it would seem that in spite of the scientific foundation which modern medicine is supposed to rest on, our position is anything but fixed and definite, and, never, probably at any time, was the profession more eager to test the efficacy of any therapeutic agency, provided only that its source was from those recognized as authorities. Our bent is essentially materialistic,

and we are endeavoring to wring from nature her mysteries and her secrets by experimentation and biologic research, rather than on the old beaten track of clinical observation. Surgery has made vast inroads on the domain of the physician. Not content with the slow uncertain action of medicines, by an internal route, we now take time by the forelock and scarcely any recess of the body is beyond the exploratory advances of modern surgery.

The same cavities which our forefathers never penetrated, except with fear and hesitation, have lately been ruthlessly invaded, and we have been led to hope that the time had come when many of the maladies heretofore quite incurable were now capable of prompt and certain eradication.

Truth and justice, however, compel us to avow that, except with the cavity of the peritoneum, it remains an open question, whether or not aggressive surgery has any well founded claim in the way of securing better results than may be attained by constitutional or symptomatic treatment.

With pulmonary diseases, surgery can do little, except in draining for empyema. And in this, of all the cavities, physics has brought the art of diagnosis practically to perfection. Since the doctrine of cerebral localization has been promulgated, Ferrier, Broca, Victor Horsley, McEwen and others have made the brain and its surgery a special study, the cranial cavity has been opened and explored in the treatment of many traumatic and pathologic conditions which, formerly, were regarded as quite beyond operative relief.

From what had been achieved by the security against inflammation or septic infection which antiseptics afforded, the precision derived by cranial topography and accurate cerebral localization, together with such osteoplastic operations on the cranial walls as would permit us to again fill in the wide breach made through them, it was believed that the time had come when we might succeed in locating and removing safely, neoplastic formations, or such other pathologic conditions as give rise to or perpetuate many of those maladies which appear to be of central origin.

It was earnestly hoped that at last a way had been opened by which we might offer some prospects of cure of that dreadful affliction designated epilepsy; that if it were dependent on cranial contraction, expansion and free play of the cerebral mass might be promised through a simple division of the cranial walls; if there were hard osseous compression, it would be easily relieved by the trephine; if there were new growths or adventitious formations, that their extirpation might be safely accomplished.

How far our anticipations have been realized in this direction, what positive substantial progress has been made, it is interesting and necessary that we now determine, in order that we may be able to make a reasonably definite forecast of the results following these cranial operations which are undertaken to relieve a case of epilepsy, whether their scope should be enlarged, or, on the contrary, restricted to only very rare and exceptional instances in which the physical distress is so great that any description of interference, not too hazardous to life is justifiable when indications point, even though remotely, to the probable seat of trouble.

Before we undertake the treatment of any disease on a scientific basis, it is indispensable that we have a correct understanding of those pathologic conditions of the elements of the structures or organs through which it finds expression. Though, even when such a consummation is attainable and science has pointed unmistakably to definite etiologic factors, it has, so far, been singularly impotent in all but a very few instances to proceed any farther and indicate specific remedies. Thus we will observe that though physics has enabled us to easily recognize and follow every stage of pneumonia, its mortality remains as great or even greater than when symptoms alone were treated. Nor has the discovery of the microbe of phthisis suggested its antidote. Our microscopic differentiation of the cell elements of malignant growths has in no manner enabled us to the more effectively abort their progress or, after their advance has begun, do more than treat them on general principles.

But with epilepsy, anything like a definite pathology is wholly wanting. There are good reasons for believing that though its manifestations are through explosions of nerve force, by way of the encephalon, there are other subtle influences in operation, possibly in the blood of some one of the eliminating organs. While the cause of the malady remains in such profound obscurity, how is it possible to direct effective measures for its control or cure? And this view of the question is borne out by the fact that in our time nearly every large city is provided with special hospitals or asylums for the management of many of these hopeless cases.

But there are quite a few of the focal or Jacksonian type, which seem to date their origin to an injury of the skull. Perhaps a blow or a fall, which produced evident cerebral concussion, or a fracture with depression of bone. In one case which came under my care there was a marked depression of the left glabella of the frontal bone, produced by compression of the obstetric forceps at the time of birth.

For this class, aggressive surgery was looked to for relief. The depressed bone might be elevated or removed; an organized blood clot pressing on the cortex might be displaced, a new growth enucleated, or adhesions between the meninges and brain substance liberated.

Intra-cranial surgery was soon greatly enlarged, and this offered a fertile field for radical methods. Treatises have been written on it and monographs in great number have been widely circulated, setting forth the claims for this new departure. Progress, however, had not made very great advance before circumstances arose that led to a pause; and then reaction set in, until now we have reached a middle ground, with a tendency rather in the direction of a salutary conservatism, than ill-timed indiscriminate operating.

It was found that the operation of *trephining* itself was attended with many serious dangers to life from hemorrhage, meningitis and cerebral hernia, and what was most discouraging, after varying intervals of time, the convulsions almost invariably returned.

In some few cases the epileptic attacks were not so frequent nor violent after operation as before. True permanent cures have been reported; but no such result has ever come under my observation, either from the hands of others or in my own practice. It is not impossible nevertheless, to find an occasional cure succeeding operation in a certain class of cases. A great fright has been known to produce epilepsy as well as

a severe physical accident; and, singular to say, the same agencies have been known to promptly cure it. Some years ago a little girl was under my care for the treatment of a fractured arm, resulting from a fall over a rocking-horse, and though a victim of the most violent form of epilepsy before the accident, she has never had a seizure since; many have experienced a vast improvement by hypnotism, the faith-cure and clairvoyant treatment. It is, therefore, reasonable to inquire what rôle psychic influence plays in these cases which been operated on; the anticipation, dread and fear of the ordeal, the effects of the traumatism on the tissues, the loss of blood, or the effects of the anesthetics?

If we were only assured that any type depended in certain cases on localized compression, as depressed bone, or tumor pressure alone, then we might hope for enough benefit ensuing to warrant us in undertaking an operation for its removal. But those who have opportunities to examine many traumatisms of the skull, know well that in many who have well-marked bone depression, epilepsy is never witnessed. It is a well-known clinical fact too, that moderate cerebral compression is entirely compatible with the healthy functions of the brain. Extensive intracranial compression may produce pain, paralysis or coma; but that it in itself is ever a sole and direct cause of epilepsy is decidedly doubtful.

In more than seven hundred fractured skulls, beside other serious traumatisms of the brain which have come directly under my care during the past fifteen years, I have found no direct evidences that a moderate indentification of its plates or intracranial pressure from effusion ever *per se* was the cause of epilepsy in any one who before the injury did not give a history of having had it at some earlier stage of life.

With those who have an inherited or an acquired tendency to this disease, a cerebral injury undoubtedly often serves as a direct determining cause of its manifestations, and, with this class, we may, perhaps, expect the most satisfactory results from an operation on the brain when we have reasons to suspect pressure.

On a comparatively superficial examination of the surgical literature of the past ten years, one is quite amazed at the vast number of cases of epilepsy that have been treated surgically during that period. This is notably true of the Jacksonian and traumatic types. Few surgeons could resist the seductive promises held out by modern investigators, with the apparent precision in cerebral localization and no serious peril to the patient. Current medical publications, in both Europe and America, contain almost an infinite number of cases dealt with by radical measures, yet, withal, it does not appear that any author has prepared a statistical table setting forth in detail the ultimate results. It is obvious that such an undertaking, though highly valuable, would be quite impossible, for the reason that in a very considerable number the reports of several are so incomplete and indefinite as to be practically of no value. Certain authors speak of "recoveries" after operations when it is not clear whether they refer to operative success or cure of the disease. Very many are set down as "recoveries" when the time that the patients were in hospitals was too brief, or they were too soon lost sight of.

But very few have noted the influence of hereditary taint, sex, physiologic conditions, or antecedent history. Enough, however, has been gathered to lead us to the conclusion: 1, that trephining the skull is in itself, except in the hands of skillful surgeons, an operation which may endanger life; and 2, that, with only occasional exceptions, it makes no permanent impress on the course of the disease. Gowers ("Diseases of the Nervous System," vol. II, p. 314) believed that "blows and falls on the head which cause symptoms of cerebral injury are sometimes followed by recurrent convulsions of an epileptoid character, leaving an impaired vitality of delicately constituted cells; the convulsions being local, owing to a local damage of the cerebral cortex." This view is difficult to harmonize with oft repeated clinical observations; and if rational does not explain how we may look for relief through tapping the skull.

Gray says, that these cases of a peripheral origin usually improve under treatment; though a convulsive tendency clings to them. ("Diseases of the Nervous System," p. 375.) This distinguished writer adds, that "trephining is a harmless procedure, under antiseptic precautions." The same writer tells us that some may enjoy an immunity from an attack from ten to fifteen years, and others a shorter time. What we are desirous of correctly appreciating after a traumatism borne by the skull, and followed by epilepsy, is precisely the effect of this *alone* as an etiologic factor. Before we can conclusively settle this important question, we must eliminate all extraneous influences; those already stated, beside the reflex neuroses, such as have been reported by various authors; a few of which may be enumerated. St. Vilbis, in three severe cases of nasal catarrh, saw severe attacks of epilepsy which quickly ceased when this was relieved. (*St. Louis Medical Journal*, 1888, vol. XVI, p. 17.) Robert saw a man have epileptic fits every time he had a severe attack of pleuritic pain. Another author cured his patient by removing an injured eye; while Bartholow saw cases which he believed were cured by the expulsion of orange seeds in the intestinal canal. Le Grand Du Saulle (*Gaz. Des Hôpitaux*, 1885, LXVIII, p. 491) reported eight cases of epilepsy caused by viewing the dead body. They were all females, from 12 to 28 years old, and in all there were histories of being the progeny of drunken or neurotic parents. He accordingly observes that in all these cases there was enough to account for the onset of the malady, independent of fright or shock.

In one of my own, the patient gave a history of having borne an injury to the skull in childhood. With the aid of Dr. M. C. O'Brian, the neurologist to the Harlem Dispensary service, I was enabled to localize the apparent intracranial mischief, and after removing a disk of bone, came down on a glioma as large as an egg, lying between the arachnoid and cortex, over the fissure of Rolando on the right side. This was completely removed and our young man promptly recovered from the operation; but the truce was very brief, for in three months the convulsions returned with their old-time severity. Echerexria throws some light probably on the cause of our failure, for he cites quite a similar case, ending mortally after operation, in which, on autopsy, several growths of a similar character were found scattered throughout the brain substance. My patient gave a history of trauma in early life. (*Arch. de Med. Gen.*, t. III, p. 533.)

From the accumulated testimony of a very large number of surgeons who are not disposed to "color" or report their cases in such ambiguous terms as to

leave one in doubt of final results,we can only conclude that the number of cases of epilepsy capable of substantial relief or permanent cure through the resources of surgery is very small indeed. We have no evidence that trephining makes any impression on the chronic type of a constitutional origin; those only dependent on local traumatism holding out any definite hope from cranial surgery.

The afflicted are loath to admit that they inherit special diseases, and will resort to many subterfuges rather than acknowledge the truth. This human frailty is peculiar to no particular class. In many of these cases which come to us with scars on their scalps, no doubt, if we instituted a searching inquiry, we would find in some of them, at least, that they were produced by a fall in an epileptic seizure.

In the general run of this class we will not find sufficient osseous compression to account for the epileptic seizures. Some will say that there was a marked thickening of the plates of the skull where the trephine entered, but how can we determine this, except we are familiar with the relative thickness of the whole skull, which is quite impossible. And so may there be patches of thickening of the dura mater or the meninges found; a similar condition often met with within the skulls of those who have died of maladies in no manner connected with the brain.

It is certainly doubtful if moderate local depression of bone *per se* will cause epilepsy. I have trephined and elevated depressed bone after cranial injuries more than one hundred times; either immediately after injury or within forty-eight hours, and in no single case have I ever seen epileptic convulsions follow, except when meningitis developed. In one man an opening was made in the skull to drain a traumatic abscess which contained nearly six ounces of pus, but there were no fits, though we had reason to believe that the fluid compression had lasted more than a week. In another man I removed, by *débridement*, several depressed fragments from his skull, which had been injured five years previously. The fracture had produced an indentation that would admit the top of the finger and was located immediately over the torcular, which fact probably accounted for non-interference at the time of injury, through fear of hemorrhage. He never had any convulsions and only came to us because there was a discharge from the necrosed fragments, which produced spells of irritation and pain in the scalp, which he wished relieved.

We are not in a position yet to make any accurate estimate of the range of intracranial surgery in these cases of neoplastic growths, involving or within the cranium, which are presumed to provoke epileptic seizures. If we are in possession of such definite data diagnosis as point with certainty to this malignant character, surgery is impotent to offer any relief, except by such perilous exploration as will place life in danger without any commensurate advantage. Operative interference for the malignant class may be totally discarded.

The myxomatous or gliomatous growths are those most frequently met with in the cortical or gray substance of the brain; and are the species of heterogenous formations most often encountered in various forms of focal epilepsy. They seem to bud from the stroma of the pia mater, usually are of small volume, have very thin walls and lie close to the under surface of the arachnoid. Sometimes they are covered at varying depths from the surface by a layer of medullary substance. In physical character they closely resemble the gummata of syphilis.

Neurologists in many instances, are able to locate them with remarkable certainty, as I have seen demonstrated several times. If the therapy of those cerebral affections accompanied with epileptic seizures was as definite as their diagnosis, the problem would be solved, for experience teaches us that, with few exceptions, after the evulsion or enucleation of these pulpy cysts, the tendency to many cerebral disturbances which they provoke continues. The cerebral centers are then said to have acquired a habitual derangement, or have undergone such alteration in their elementary structures that operative measures in nearly all cases can only assure a temporary truce.

The surgery of certain types of epilepsy to-day occupies a status not altogether unlike that of cancer, *i. e.*, in various clinical types it holds out no possible prospects of cure or even of relief.

Like the dread scourge of epithelial proliferation, in rare isolated instances, after operation, epilepsy may not relapse. Indeed, on the whole, it may be said that cancer is the more amenable to treatment; for the charlatan has always a large *clientéle* of those afflicted with this malady, though it is seldom that we see him advertise his "cures" of epilepsy.

From the foregoing brief review of the surgery of epilepsy, the inference will probably be that, notwithstanding all that has been written of late years on the great advances of intracranial surgery, its application to those morbid conditions of the brain that gives rise to epilepsy in its various forms is so narrow and limited as to be practically of no avail.

It has not been my intention to leave that impression, for it is my conviction that with the onward march of progress, in the near future a way will be opened through scientific reseach, experimentation and improvement in surgical technique, by which many of those afflicted with this disease will be greatly relieved, if not promptly cured. Even now there can be no question but in a considerable number of the most aggravated type, though surgery can not promise a permanent arrest of the convulsive seizures, it may very greatly reduce their frequency, relieve the congested state of the vessels of the brain; diminish the dizziness and headache, displace despondency for buoyancy of spirits, and produce an entire psychic change for the better in the individual. In the Jacksonian and traumatic types, though we may not be able to guarantee to our patients a definite cure, we may quite confidently assure him of a mitigation of his symptoms and a removal of the conditions which, if left undisturbed, in many are liable to lead to serious symptoms later in life. Nevertheless, it has been my aim to warn against being too optimistic, or too sanguine in exacting from intracranial surgery, results which we well know at the present time we may not hope to realize in any but a small proportion of cases.

115 West 49th Street.

A MIXTURE FOR LOCAL ANESTHESIA.—Le Gerant and E. Pierre (*Le Moniteur Thérap.*, 1895, XXII, p. 160). The following formula is given for local anesthesia, to be applied as a spray:

Chloroform	10 parts
Ether	15 parts
Menthol	1 part

The anesthesia resulting from the application lasts about five minutes.—*Am. Med. Surg. Bull.*, Dec. 1.

THE MORAL TREATMENT OF EPILEPSY.

Read in the Section on Neurology and Medical Jurisprudence, at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

BY H. M. BANNISTER, M.D.

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In a discussion in the Chicago Academy of Medicine last October, I made some remarks on the moral treatment of epilepsy, the substance of which afterward appeared in the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION and the *Medical Standard*. The subject appears to me, however, extensive and important enough to justify me in again calling attention to it, and perhaps stating certain points more fully than was done on the occasion referred to.

If there is any fact established in pathology, that epilepsy is a disorder of the cerebral cortex must be admitted as such. While we may perhaps allow, with some of the Italian school, that in certain exceptional cases the basal ganglia may vicariate for the cortex in some of its functions, the general truth that convulsive manifestations, such as are characteristic of this disease and of cortical origin, may be considered as established. It, therefore, is a disorder of the highest organ of the nervous system, one that is the organ of psychic functions, and its motor manifestations are most prominent on the very boundary line between psychic and non-psychic affections.

As might be expected, this being the case, we find that the disorder of which epilepsy is a symptom has close anatomic relations with mental disease which coincide with its clinical features. It affects the highest controlling apparatus and the one also which reacts to every influence, moral and physical, that may affect the organism, and which in disease is the most liable to its disturbances in its functioning from all kind of external irritation. In epilepsy, the condition of the brain is preëminently that of irritability, and the epileptic attacks of every type are only the extreme manifestations of this irritable condition. In a very large proportion of cases in common life, this chronic irritability is hardly noticeable, and the attack has apparently little effect upon the mental functions or the character. Yet, could we get all the facts in most of these cases it is highly probable, indeed, almost certain, that there would be found some exciting cause for the attack, and that often a psychic one, that was more or less avoidable. At least this is true, I think, in the earlier stages, before the attack has become a sort of habit of the brain, periodically appearing without apparent cause.

The treatment of the disease, therefore, would appear to include, not only the medicinal agents that can control this cerebral irritability, but also everything that may remove or favorably modify it, whether in the way of regimen, diversion, suggestion or physical control.

The text-books, as a rule, say but little about anything but medical treatment by drugs and diet, etc. The briefest mention is sometimes given to the general management and to moral treatment, and it might be inferred that this last is comparatively useless or unimportant. To some extent this opinion exists and is due, I think in part, to the notion very generally taught, that all the inconvenient symptoms that accompany epilepsy, the attacks, minor and major, and the pre- and post-epileptic conditions are accompanied with unconsciousness, and that they are therefore not amenable to moral treatment. The interparoxysmal irritable condition must, of course, be excepted, but this is generally spoken of as a profound alteration of character, due to irremediable organic lesions, and therefore itself irremediable. These views I consider from my experience to be largely based on errors of observation. The epileptic has frequently a consciousness of his surroundings, even in the pre- and post-paroxysmal condition; and when there is afterward complete amnesia, he is nevertheless more or less amenable to moral treatment during the continuance of these states. I can give numerous facts supporting this view and shall include one or two later in this paper.

Excluding all cases of epilepsy in which mental and moral changes are lacking, or, if existing, amount only to a gradually progressive dementia, we may divide the victims of this disorder as regards moral treatment into two great classes; those in whom the dangerous symptoms are transient and connected with the occurrence of the fits, and those whom the irritability and change of character render dangerous at all times. In this first class we have patients who are comparatively rational for longer or shorter periods, in which they can appreciate their condition and provide for its emergencies. During these periods they are as amenable to moral and prudential considerations as most people; they can realize the need of their restraint and will generally coöperate in any necessary measures if properly treated. Sometimes they can exercise sufficient self-control to decidedly modify pre-epileptic conditions of irritability, as I have often observed.

A patient of mine whose disturbed spells, though extremely violent, came on gradually, would confine himself to his room for days when he felt their premonitions, in order not to have them precipitated by any irritation or annoyance from other patients, and sometimes would escape the severer manifestations altogether. He was often conscious of his condition, even in many of his worst attacks; but while normally a rather fearless man, when in the epileptic furor, which was to all appearance typical, he was never seen to attack any individual physically more powerful than himself. The loss of the higher inhibitions seemed to make him cowardly while it made him violent, and this is a phenomenon I have more than once observed in furious epileptics who are supposed to have no more regard for prudential considerations than a mad dog.

In one instance, an extremely violent post-epileptic attack of maniacal excitement came to a sudden ending, due, I have reason to believe, to an encounter with an attendant whom we were obliged to discharge because of his treatment of patients. That such measures are often employed against epileptic furor outside of asylums, I have the testimony of intelligent epileptics themselves, and one, at least, who had been used to a rough life, expressed his contempt of the hospital discipline that did not permit of such efficient treatment in his own case. With perfectly humane and legitimate measures, however, it is possible by moral treatment to so modify the disturbed attacks of epileptics in a large proportion of cases, as to render them comparatively harmless. Actual automatism, impervious to reasonable and tactful management, is by no means so universal in these cases as the text-books would lead one to believe.

It is advisable, in my opinion, to keep epileptics to themselves, away from other patients as far as possible, to obtain the best results from moral treatment. While irritable, they are sympathetic and can appreciate each other's misfortunes; they are, I believe, less egotistic by far, as a rule, than the ordinary insane. There are, it is true, notable exceptions to this, and they have created the prevalent impression in regard to the whole; but what I say is true at least of the class now under consideration, which form a very large proportion of the epileptic cases in our asylums.

One important point in their management is to have strict but reasonable rules for their control. They are capable of appreciating the necessity of their sequestration, and can be reconciled to it if treated with kindness and consideration. Relaxation of rules can be granted as special favors or rewards, under careful medical oversight, with great advantage; but any indiscriminating laxity, or liberties granted as a right, will be apt to create trouble, as when they are necessarily taken away the patient is least fitted to appreciate his own condition and the need of the restriction. This, I take it, is one of the most important considerations in the management of this class of cases.

The second great class, those who from change of character or constant irritability are to be considered as always dangerous, are also generally more or less amenable to moral treatment. A few are morally insane, but even these have generally some utilitarian sense of what is to their advantage, and are therefore more or less amenable to legitimate asylum discipline. A very large proportion of the whole are reasonable, and will endeavor to coöperate with any judicious physician who gains their confidence, for their own good, and can be taught to exercise self-control to a greater or less extent. Together with the medical treatment to lessen their irritability, it is important to have these patients put under all possible favorable influences, and in some few extreme cases isolation from others to a larger extent is advisable. Some of the most irritable will voluntarily seek this, and if they can be kept sufficiently under observation it is perhaps the best course to favor them in this as much as possible. Moral influences are, however, not inapplicable in these cases, and occasionally the religious tendencies, so common in epileptics and which are, I think, undervalued generally in the treatment, can be utilized.

Many of these patients are not changed materially in their character; they are just what they would be without epilepsy, plus the irritability. Every exercise of self-control has a beneficial effect and religious motives, in which they are sincere, are often the strongest stimulus to this. In one of the most dangerous epileptics I have known, there occurred almost a complete change of character from this cause; while the irritability still existed it was constantly fought, and to a very large extent controlled by the patient's endeavors to live a consistent Christian life. It was a great trouble to him that he could not better succeed, but his dangerous tendencies were pretty effectually suppressed. A little encouragement and show of sympathy for the religious feelings of epileptics, allowing for their inconsistencies and failures as the results of their disease, will, I believe, often be a valuable aid to their management, at least in some well selected cases. In a large number it may do no good, but it is one of the facts that ought not to be slightingly considered in the moral treatment of epileptics. There is no greater moral and social force in the world than religion, and it is one for which epileptics afford a special field in a moral therapeutic point of view.

There are, of course, very great differences between epileptics, and individual treatment in the fullest sense of the word is requred for every case. But it is true that, as a class, the epileptics are far more susceptible to what is known as moral treatment than seems to have been recognized by the majority of those who have written upon the therapeutics of their disease.

I have, in the foregoing, considered mainly the epileptics confined in our hospitals and asylums for the insane. Those who can be treated at home, from the only occasional epileptic to the mild epileptic dement, hardly call for moral treatment, though there is a degree of uncertainty as to the conduct and future of any one habitually subject to these attacks. Those, however, who fall within the two classes I have mentioned have their proper place in an asylum or special institution, and it is in such that what can be called moral treatment is applicable and useful. The separation from former influences, the subjection to necessary discipline, the regulated employment and diversions, are as essential and even more valuable remedial agents, than anything that can be prescribed in the way of drugs and diet. Patients who have been violent and troublesome, even to the extent of falling into the criminal class, under these new influences often become amiable, docile and industrious. I have one in mind who had been committed for violence and petty offenses some forty times, whose head was scarred all over with marks of clubbing and to whom fighting had come to be almost a second nature, who became in his way a model patient—cheerful, manageable and industrious, simply by being placed among considerate fellow-sufferers under a kind and tactful attendant. Undoubtedly there are many such who have been considered as dangerous, and really are under the condition of ordinary outside life, but who can be useful and happy inmates of a well-conducted epileptic colony, such as now are being proposed or started in various parts of the country. There will be a proportion who will require restraint, but the majority of these can be modified for the better, and life made happier and easier for them by judicious moral treatment. The incorrigibly bad, those who exemplify the epileptic character as it has been described, are but a small minority of the whole.

I have not directly mentioned, but have only indicated in the foregoing the hysterical element that exists in the case of most epileptics, and which, when we carefully study them, is often very clearly manifest. It plays a very important part in the character of many of these patients, but is often entirely overlooked in their treatment. We should, I believe, consider all pronounced epileptics as more or less hysterical, and adopt measures to meet this element in their case. Naturally, these will be largely in the nature of moral treatment.

While medical treatment is the mainstay in epilepsy of the milder types, that can be treated outside of institutions, it often is only secondary to the other measures mentioned, in the more advanced

cases with dangerous tendencies and direct mental impairment that compose the two great classes considered in this communication.

MY EXPERIENCE WITH SOLANUM CAROLINENSE IN THE TREATMENT OF EPILEPSY.

Read in the Section on Neurology and Medical Jurisprudence at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

BY C. F. BARBER, M.D.

BROOKLYN, N. Y.

In February 1893, my attention was called to the use of *solanum carolinense* in epilepsy; accordingly, I made an effort to learn something of its efficacy, also of its source before utilizing it in my practice.

I found *solanum carolinense*, or, as it is more commonly called, horse nettle, bull nettle or sand brier, was not official. It is not recognized by the U. S. Pharmacopœia, but a description, short, it is true, is found in the Dispensatory of 1894. It is a native of Florida and Carolina but is found as far north as Connecticut; grows from one to two feet in height, branching, and is covered with shaggy hairs which are armed with stout, straight, yellowish prickles. The leaves have the same armor for defense as do the stem and branches. The berries which are the fruit of the shrub are utilized in preparing the preparations used in medicine, and when mature are of an orange yellow color. The shrub prefers a sandy soil for its growth and is most tenacious of life when once established.

Little has been written about the drug or its action, consequently there is little to review. Krauss isolated two active principles in 1894: solanin and solanidin. Only two preparations have thus far been used, the fl. ext. and a 20 per cent. tincture.

The honor of placing this agent before the profession is due Dr. J. L. Napier of Blenheim, S. C. In 1889 his paper was read before the South Carolina Medical Society and after explaining the results of his observations among the negroes who use the berries in whisky, making a tincture, he concisely depicted its results in his hands, which, I may add, were exceedingly encouraging. Finding that the primary users of the berries were in the habit of administering them in cases of convulsions, the doctor secured some of the preparation used by the negroes and administered it to a case of epilepsy which had baffled the energies of all the medical men in the vicinity and obtained surprising results. One case after another, doing well under its employment, he gradually became a convert to it as a therapeutic remedy in epilepsy and allied disorders.

Dr. Geo. F. Foy, F.R.C.S., in *Medical Press and Circular* (*Medical Age* 1890, p. 18), refers to the results of Dr. Napier in a very complimentary manner and speaks as though he had much hopes from the drug.

In March, 1893, I obtained from Dr. A. G. Selman, of Indianapolis, a sample of the tincture. My wards at the Kings County Hospital having many epileptics among their occupants, I at once placed several upon the use of the remedy. At this time I subjected only those having the *grand mal* type of the disease to the use of the drug. From one to six convulsive seizures is the record of these patients for twenty-four hours.

As is the case in many instances where the drug is changed in the treatment of epilepsy, my immediate results were encouraging, for not a convulsion occurred for days. For several weeks the improvement continued, some of the patients brightening mentally. This latter condition may have been due simply to suspension of the bromid treatment. In a few instances, slight drowsiness, and in one case vertigo was complained of. These symptoms were quickly relieved by either lessening or suspending the quantity given.

The individual histories of this series of cases, I regret to acknowledge, have been lost or mislaid. I was not aware of this fact until after I had promised to prepare this paper at the solicitation of your worthy Secretary.

In two cases, one of epileptic insanity the other having mild epileptic seizures, I had the pleasure of noting marked improvement in each instance. The case of epileptic insanity had been under my care at times for six or seven years with little or no improvement. He had been subjected to all forms of treatment, but no favorable result, even for a short interval, was even noted until the drug in question was tried. The attacks occurred in this boy both at night and during the day, the periods of insanity lasting from a few hours to several days. While under the use of this drug, he brightened mentally and his convulsive seizures were reduced from three in twenty-four hours to two a week.

In a little girl who had mild epileptic seizures, two or three occurring each week, I had the satisfaction of knowing that her condition was so much improved that her parents considered her cured. I doubt this statement, but am willing to admit that the paroxysms were so mild in character that an untrained observer would consider them simply little nervous turns.

In no case, thus far, have I seen the seizure cease entirely, as has been the experience with some of my predecessors in the use of solanum. I have had no bad effects, save the slight dizziness spoken of and the drowsiness.

I must ask the pardon of this Section for presenting this incomplete report, but as I can add some more positive data I shall hope to be excused for placing the foregoing before this distinguished body.

My later investigations have been conducted with the fl. ext. of the drug obtained from Parke, Davis & Co. The dose has ranged from half a drachm to half an ounce. The ages of the patients from 8 to 50 years, and the cases have comprised those suffering from epilepsy with idiocy, epilepsy with insanity, epilepsy with *grand* and *petit mal* and epilepsy from traumatism. The cases the results of trauma were of old standing and had been reported as cures, each having been operated upon. They had, however, from two convulsions in twenty-four hours to eight or ten in the same time.

In observing my last experimental cases, I have been greatly aided by the watchful care of Dr. F. Welker, who has carefully tabulated the results from day to day. Eight of the cases are attending the school for feeble-minded children which is an outgrowth of the idiot ward.

Of these, three are boys and five girls. The girls, who are in the habit of having epileptic attacks each day, did well for a period of three weeks, not a convulsion occurring. At the end of that time; however, I began to regret that I had ventured to test the usefulness of

the drug, for at a most inopportune time they all had convulsions and from this relapsed into their former state, that is, the condition I found them in before beginning the use of solanum. Although the dose was pushed, no improvement was noted and the treatment was abandoned.

With the boys a different state of affairs prevailed. They had an outbreak a few days following the girls but milder. Another period of about a week's duration intervened, when they gradually relapsed into their epileptic state.

Among the epileptics who were subject of *grand mal*, I had about the same results as I had experienced with the male epileptic idiots, save that the period of improvement continued longer and the relapse was more gradual. Ten who were under the drug did not have a convulsion for twenty-nine days. Then a case which was in the habit of having from three to six seizures per week had a mild attack, not being obliged to lie down. This patient is mentally much brighter than he has been for some time and is now capable of doing light work about the ward, which is contrary to his condition in the past. He now has his epileptic attacks, but they are milder in form than previously. I will not take the time of this Section going into the histories of these cases, but briefly cite three or four cases as examples of my general results:

Michael D., age 19 years, has been a subject of epilepsy for a number of years (exact period unable to ascertain, patient being an idiot). Patient had one seizure per week for a long period before taking *solanum carolinense*. After placing the patient upon the use of the drug no improvement was noted.

Mary H., age 23 years, has been a subject of epilepsy since her menstruation first appeared, is mentally bright save a period of slight stupor after a convulsion. Before using the drug she averaged three convulsions per week. Under the use of *solanum carlinense* she had an equal number and they were more severe in character.

Henry K., age 35 years, has had epilepsy since 18 years of age. Attacks followed the kick of a horse. He will average one a day and very severe. Patient is violent at times. While under the use of the drug in question he had several a day and of great severity. These are examples of many cases of which I have histories, but illustrate results obtained in my hands by the use of *solanum carolinense*.

In the *Medical News* of recent date, Dr. E. D. Boudurant, of the Alabama Insane Asylum, has placed his experience before the profession and his results are no more flattering than mine. A few conclusions can be deduced from the work done with this drug:

1. That *solanum carolinense* is not a substitute for the treatment now generally accepted for epilepsy.

2. That it is a preferable substitute for the bromid treatment when compared with the biborate of soda.

3. That it unquestionably has an influence over the disease, although mild. It sufficiently controls the disease so as to warrant us in substituting it for a time to relieve our patients of the depression produced by the bromid treatment.

4. Its toxic effects are nil.

Dear Doctor:—Please direct the attention of your friends to *our* JOURNAL. We will be pleased to send sample copies to any names you may suggest.

THE SUPPLEMENTARY TREATMENT OF EPILEPSY.

Read in the Section on Neurolology and Medical Jurisprudence at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7–10, 1895.

BY A. N. WILLIAMSON, M.D.
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The brief paper to which I beg to call your attention for a few minutes is simply a plain commonsense talk on the treatment of epilepsy; my object being to point out how our ordinary methods of treatment may be supplemented and made more effective by closer attention to certain points too often considered of minor importance. I do not know that any one is able to tell us very much that is new in regard to the etiology or pathology of this disease, but we may hope to make some advance in the matter of treatment. I have lived with epileptics for the past fifteen years, have studied the disease in its various manifestations, and it is possible that what I have learned in regard to the minutiæ of treatment, the minor details which are beyond the reach of the general practitioner, may be of interest to you. I shall not speak of epilepsy due to organic disease, where the convulsion is a symptom merely, but to *true* epilepsy, where, so far as we know, the convulsion *is* the disease.

Now, we have the power through a certain remedy of controlling the manifestations of this disease to a certain extent, giving a patient certain relief for a month, three months, sometimes a year—when a relapse occurs. If the convulsions can be successfully warded off for so long a time, and the patient kept in apparent perfect health, are we not justified in the inference that, by proper treatment and care, that period of immunity may be prolonged, perhaps indefinitely? What causes the recurrence of the attacks after a year's immunity? Is it, or is it not a preventable cause? If we are using the bromids is it because, after a time, they cease to influence the system as they did at first? We do not think so. My experience leads me to the conclusion that the recurrence of the attack is due in most instances to *preventable* causes. There are three directions in which we can look for the causes of this recurrence:

1. To the constitution of the patient and his capacity for tolerating the requisite doses necessary to control the spasm.

2. To the condition of the digestive system.

3. To the question of personal habits, exercise, occupation and personal discipline. As to medication, the bromids are, from their positive value, in such general use that, in considering remedies, it is hardly necessary to refer to any other agent. Yet, in spite of this absolute value and relative success, they are held in almost universal opprobrium by the laity everywhere.

People who write to me for advice nearly always ask the question: "Do you use the bromids?" to which an affirmative reply probably ends the correspondence. Is this opprobrium deserved, or can we trace the fault to other sources? The bromids exert a powerful effect upon the system and the physician can not do justice to the patient or to himself unless he watches the effect carefully from day to day graduating the dose to suit the varying conditions of the case. It is especially important in this disease and, in fact, in all diseases, to become early acquainted with the exact dose required in each individual case,

in order to produce the effect sought. A dose which will profoundly affect one person, will be entirely inefficient in another. It is not uncommon to see epileptics, having a tendency to mania, driven into a positive outbreak by an overdose of the bromids. In such cases it can be used only with the greatest care and in small doses, even if at all. The patient must be kept under close observation and the remedy suspended at the first sign of mental trouble. In any case, the stage of full bromism should be avoided. If the bromids will not control the attacks until that stage is reached, we may be pretty confident the case is hopeless. It is my rule to push the dose to the point where the effect is only very slightly noticeable; mentally and physically the patient should be a little below the normal. To neglect, or inability of the physician to watch the matter carefully, we can easily trace one of the reasons why failure so often results from the use of the bromids. The immense amount of treatment done by quacks, through correspondence, has largely helped to bring the bromids into disrepute. There is no room to doubt, then, that a faulty administration of the remedy has much to do with bringing about a recurrence of the attacks.

Next to medication, and almost equally important, is the care of the digestive organs. To neglect of these organs we may undoubtedly trace a large proportion of our unsuccessful cases. General directions in this particular will not suffice. An epileptic is always balancing at the verge, ready to topple over into a convulsion at the slightest provocation; and if he has a weak stomach and poor digestion he stands little chance of obtaining permanent relief. And if we go back to the time of the first seizure, I am convinced that the one prominent factor, not only in exciting but perpetuating the attacks, is abuse of the digestive organs. Predisposing causes exist, either hereditary or peculiar to the individual case. I refer to determining causes. The books tell us that the convulsions of children are caused ordinarily by teething, worms, or fright, and in adults by self-abuse, tobacco, or mental anxiety. Well, teething is a natural process, worms are seldom in evidence, and I have never yet seen a case in which the attack could be traced to fright or mental anxiety. But I have traced the cause, in many cases, to a stomach distended with indigestible food, or an intestine filled with impacted feces. In infancy, nature sometimes intervenes and relieves the over-full stomach by vomiting. But, too often, it is to a thoughtless mother or a careless nurse that we may attribute the first onset of this dreadful disease.

It is absolutely impossible to get satisfactory results from medical treatment if the stomach is given more to do than it can do with comparative ease. Whether the result is due to local irritation or to interference with the circulation, certainly undigested food is quite as probable a cause of convulsions as worms, and a cause much more frequently present. The habit of constipation is almost universal in this country, and often it is acquired in childhood. It must be overcome, one way or another, if any favorable results are to be obtained from treatment. An epileptic who is not habitually constipated is an exception. It is my rule to allow no patient to go over a day without a free movement. If necessary, an injection of tepid water is resorted to before retiring. In the matter of diet, constant watchfulness is necessary, both as to the quantity and quality of food taken. An ordinary plain diet, everything of the best, is safe in most cases, but the quantity must be rigidly restricted. Epileptics have often extremely voracious appetites which it is fatal to indulge. Relatives and friends can hardly be expected to possess the requisite judgment to act as a guide in such cases, and even with the best intentions their sympathies lead them to be over-indulgent. There must be no faltering in this matter. Food necessary for health and strength must be given, but none merely to gratify the appetite or fancy. We can not attribute the fault to the bromid if the patient is thrown into a convulsion by over-indulgence of the appetite.

In the matter of exercise, it is important that a physician's judgment should be always at command. Many persons entertain the belief that exercise, carried to the point of fatigue is injurious, and likely to provoke an attack. I have not found it so. On the contrary, exercise and plenty of it is a *sine qua non*. No patient with this disease thrives, if he is sluggish and inactive, with poor circulation and cold extremities. Those who are active, erect, quick in their movements, fond of outdoor exercise and work, are the ones who respond most readily to treatment, and are the least affected by the depressing influences of the medicine. A disposition to lie about, with round shoulders, shuffling gait, and pallid face, forebodes an unfavorable result. Where a patient's general health is good, he may work all day at manual labor, not only with safety but with positive advantage. In all my experience, and it is pretty large, I have never seen an attack brought on by fatigue. Constant exercise keeps the mind occupied, a very important point in this disease, stimulates the circulation, and gives a healthy tone to the whole system.

Another point looking in the direction of preventable causes of failure, is personal discipline. Epileptics are self-willed, obstinate as a rule, easily angered, and regardless of consequences; and especially need the controlling influence of a strong mind and a strong hand. Loomis says, in his "Practice," that mental impairment is not common in epilepsy. On the contrary, in my experience, it is the exception to find an epileptic whose memory, judgment and reasoning powers are not more or less weakened. Whether young or old, as a rule, they require a master; one to whom they will yield obedience without question, otherwise there is a constant struggle, which keeps both patient and guardian, whether physician or friend, in a constant turmoil. An epileptic child stands in far greater need of strict discipline than a healthy one, for his judgment being weakened, he yields more readily to the influence of passion or to temptation in any form, and has a lessened appreciation of his fault.

In the matter of treatment and its results, it is worthy of note that the milder manifestations of the disease, the *petit mal*, yield less readily to treatment than the severe convulsions. Where the two forms coexist, it is often possible to relieve the patient entirely of the severer seizures, while the slighter ones may persist indefinitely. I have found the bromid of ammonium, in the largest possible doses, to give more relief than any other preparation. In regard to the general use of the bromids, there are some authorities who advise pushing the remedy in full doses until bromism is reached, and then suspending its use until an attack occurs, repeat the same process.

It is hardly necessary to say that this course results in final failure. In the first place, as I said before, it is never necessary to push the remedy to the point of full bromism. In the next place, our object is not to stave off the attacks for a time, and then suspending the remedy, wait and see if they recur, but, on the contrary, to keep the system under constant control, with the definite purpose of prolonging the period of immunity to the furtherest possible limit. This is certainly the correct theory, if every added month gives the system additional power of resisting the onset.

Since true epilepsy depends on such a condition of the nerve centers as can not be recognized by any means within our knowledge, we may fairly term it a habit; and, like other habits to which the system becomes habituated, the longer the period of abstention the less likelihood of a recurrence. There is no permanence in the influence of the bromids; their influence is transient, and we can not continue the effect unless we continue the administration; for, ordinarily their controlling power is entirely gone in about thirty-six hours after their administration ceases.

As regards the relative value of the different preparations, the bromid of potassium is without doubt, singly, the most efficacious; but I have found far preferable in a majority of cases, a combination of bromid of potassium six parts, sodium two parts, ammonium one part; given always before meals, and never more than twice a day, except in those cases requiring very heavy doses. In cases requiring only from fifteen to twenty grains daily, I administer it in one dose. In selecting the time for administration it is well not to forget the importance of interfering as little as possible with the digestive functions. It requires a strong stomach to tolerate such a dose before breakfast, and, if given before retiring, a coated tongue and foul breath will commonly be in evidence in the morning.

If we are seeking for preventable causes of a recurrence of the attacks in a case under treatment, none of these seemingly trifling points are of too slight consequence to deserve our serious attention. It has been by this almost microscopic care of each individual case that I have been able to treat successfully, cases that had failed to obtain relief at the hands of men of far greater reputation and ability than I possess. There is no question as to the permanent value of following out such an inflexible line of treatment as I have tried briefly to describe. It is true that it is impossible to enforce such a rigid and systematic routine in general practice, but that does not affect the facts of the case. To illustrate the results of the rigid surveillance I have described, permit me to refer to seven cases now under my treatment for periods varying from ten months to three years: typical cases, presenting all the varied features appertaining to the true epileptic: Ages, 10, 12, 15, 17, 20, 45 and 60. In five cases the disease began in infancy; in one, a robust man of 45, it had existed three years only; in another, a lady of 60 years of age, the attacks began thirty-five years previously. In none of these cases, although they had all been under the bromid treatment, had there been less than two to six convulsions a week. In one, a boy of 15, there was often as many as ten a day. When they came under my care, I put them all on the bromid mixture to which I have referred. I graduated the quantity of food with as much care and exactitude as I did the medicine, I compelled a liberal amount of exercise in all weathers. The result is worth noting. The boy of 15, who had formerly from five to ten seizures daily, has not had a single attack since treatment began, twenty-three months ago; the boy of 10, under treatment for fifteen months, has had no attacks. The boy of 17, whose case had been abandoned as hopeless, has now been free from attacks for five months. The fourth case, a young lady of 20, has now been under treatment for three years with only one attack during the entire period, and that directly traceable to indigestion. The lady of 60, who had weekly attacks for a period of thirty-five years, has had one seizure only in the past fifteen months, and that undoubtedly due to overeating. The sixth case, a boy of 12, pronounced incurable by his physician, has been under treatment for eleven months, with one convulsion only; in which, by the way, he rolled from the top to the bottom of a long, steep flight of stairs without doing himself any injury. The seventh case, a robust, strong, healthy appearing man of 45, was entirely unable to make use of the bromid preparation in any dose, the effect being to induce a severe attack of mania. Under the use of the oxide of zinc he has been kept free from attacks for upward of three months.

It is evident that the favorable result in these cases has been due solely to the close personal supervision in all points to which they have been subjected. I consider such a record exceptionally worthy of note, as showing the value of a closer attention to the minutiæ of treatment.

PREVENTABLE DEAFNESS AND ITS INFLUENCE ON SUCCESS.

Read in the Section on Laryngology and Otology at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

BY JAMES G. H. NICHOLS, M.D.
NEW YORK.

The conception of government in its modern sense involves many ideas and tendencies formerly unthought of or unheeded, but which are beginning to be considered fundamental and necessary principles in their application to the present generation, and more especially to those following. In our own department of thought and activity, preventive medicine has made great strides, and is now recognized as it should rightly be, as precedent and superior to curative medicine.

The subject I wish to bring briefly to your attention is one which I believe to properly come within the scope of our discussion, and to justify such attention by its importance. It is the occurrence of deafness in children, the causes of the same, and the question whether the State, through a properly qualified medical officer of the school board, should not insist on the early detection and remedying of this, as well as other kinds of disease, as being an important factor in the after-success of the child and consequently in its effect on the general welfare of the community.

Occurrence.—First, as to the occurrence of deafness in children, we find most commonly two varieties of ear disease, chronic suppurative otitis media and chronic catarrhal otitis media as the cause of deafness. The former follows acute colds in the head, the exanthemata or external causes, and becomes

chronic from neglect, and a wide-spread belief among the lower population that a running ear will stop spontaneously. To this most harmful notion is due the chronicity of the disease and the loss of hearing, for had the case been early attended the trouble could, in the great majority of instances, have been aborted without permanent injury to the middle ear structures. Over 40 per cent. of chronic suppurative cases give a history of beginning in childhood, but of having no treatment whatever until the impairment of hearing in adolescence became so great as to interfere with the occupation of the individual. It is certain that in most of these cases the disease could have been prevented entirely, or at least stopped in an early stage, had the parents been sufficiently intelligent to recognize the necessity for treatment, or, better yet, had the child on its first entrance into school life been subjected to a critical examination of its physical condition, as well as its mental acquirements. Recently two cases have come under my observation, both promising young men to whom entrance to West Point Military Academy was denied, solely from the existence of a chronic suppuration in one ear, not affecting the hearing in a marked degree, but still sufficient to debar them from a most useful and profitable life career. From the history of both these cases I am positive that had the attention of the patients been called to the disease by the school authorities on the boys' first entrance, this unfortunate ending could have been prevented.

Frequent colds in the head are a prolific source of acute ear disease, by simple extension through the tube. Here, again, is another preventable condition, due largely to improper hygiene, both at home and at school. The Americans are not a bathing people, and I have observed that children when they reach the age of 4 or 5 years cease to receive their daily bath, and it becomes a weekly or bi-weekly function and then a warm one instead of a cold one. It is not necessary here to more than refer to the immense prophylactic influence of daily cold tubbing in catarrhal diseases, and I fail to see why this habit of cleanliness and health should not be inculcated in the child and included early in its instruction, as well as instruction as to the effect of alcohol on the system, or the science of government.

The second class of cases consists of the chronic catarrhal ones, even more important, because so insidious is their onset and so slow their progress. They are the sequels in some instances of the chronic suppurations, but much more largely due to obstructive condition of the upper air passages, such as adenoids, hypertrophied tonsils, deviation of the septum, chronic hypertrophic rhinitis and pharyngitis; the percentage is about 65 per cent. in which these conditions are found, and they are all remediable and are demonstrated facts. Why wait until a chronic catarrhal condition has become established; why not detect it early when there is every hope of success in curing it? I need not enlarge on the presence of cases like this. The observations of Chaphill and others prove them. Admitting that deafness in children is in most cases due to preventable causes, we are led to ask what are the respective responsibilities of the State and the parent in this matter? Abstractly regarded as a matter of self-preservation and progression to higher civilization, the State has the right and the duty to supervise the health of its citizens. This is conceded by the establishment of boards of health to enforce sanitary laws of general application in the drainage of communities, their water supply, the construction of houses and the control of epidemics and contagious diseases. More recently local legislation compels vaccination among all school children at stated intervals, inspection during certain seasons of tenement houses and institutions, isolation of suspected cases, reports of diphtheria, with disinfection of premises, etc. Some States go a step further: New York, for instance, requires midwives to report instantly to a qualified practitioner any case of ophthalmia neonatorum arising in their practice. Legislation is even being agitated looking to the compulsory examination of the eyes of school children with a view to the discovery of latent astigmatism, myopia, etc., and advanced ophthalmologists have taken great pains to investigate the proper lighting of school rooms, the position of pupils in regard to the light, and in regard to their work, the ventilation of the room, and they have found, as in Snell's most recent report in the *Medical Annual*, overwhelming evidence of the importance of early attention to small things.

The ear, the nose and the throat are at least as necessary to perfect health and comfort as the eye, and, commercially, as valuable to the possessor. Why should not the community, therefore, in its general oversight of the health of its constituent individuals take upon itself also the detection of diseases of the eye, ear, nose and throat as a matter of routine in its educational scheme? In other words, the physical condition of the child should be inquired into, as well as his intellectual condition *at the start*, and thereafter at regular intervals *pari passu*, by a regularly constituted examiner attached to the school board. Owing to the advanced state of post-graduate instruction, there are numbers of qualified men available for such positions, but any practitioner competent to fill the post of health officer to a community, would also be competent to apply such tests as would serve to detect the existence of disease, and if not to treat them, to refer the parents to the proper place for treatment; indeed, it is not a part of the duty of such an officer to undertake the treatment of such cases unless in case of poverty, but simply to discover them, make them a matter of record and properly notify the parents or guardian of the necessity for treatment. Such a scheme consists of the following essential points:

1. The appointment in every school district, by the school board, of a properly qualified medical man, whose duty it should be to attend on the registration days at school and examine all the children presenting themselves for the first time, as to their vision, hearing, condition of nose and throat, freedom from contagious disease and habits of cleanliness. He should make a record of the same in the school register and, should any disease be found, should notify the parents, on a proper blank, of its existence and the need of treatment.

2. During each school year he should examine every child in his district in the same manner and should keep a record of the same, and note if his recommendations have been complied with.

3. The medical examiner should supervise the heating, lighting and ventilation of the school rooms and should have power to enforce his recommendations. He should, at stated intervals during the year, give instructions to the pupils, and by circular letter

to the parents, in regard to the care of the eye, ear, nose and throat, and general hygiene.

Legislation to this effect will be sought in New York during the next session of the Legislature, and while it is not thought that the time is ripe for such an advanced law, yet the value of constant agitation is very great, and it is hoped that this body will voice its approval of the principle involved, and that its members will aid in every way possible to bring the matter before the public.

DISCUSSION.

DR. LEWIS H. TAYLOR—While the paper just read, Mr. Chairman, does not present anything especially startling, I, nevertheless, think it one of the most important papers read before this or any other Section. A few years ago I heard a gentleman, in discussing diseases of nose and throat, say that every one should use an atomizer with proper solution to cleanse his nose and throat with the same regularity as he would brush his teeth, and as part of daily toilet. I thought this an exaggeration, but the more I investigate the subject of deafness the more I am inclined to think he was right, for it is mainly by correcting the catarrhal trouble that we may prevent chronic deafness. There is presented this afternoon in the Section on Ophthalmology, an elaborate report on the investigation of the eyes of school children, and this will be followed, no doubt, by action of the Section, looking toward securing legislation on this important question, the preliminary steps having been taken at the San Francisco meeting. The examination of the hearing of school children is no less important, and I hope this Section will express its approval of the suggestions made to this end by Dr. Nichols.

REPORT OF THE COMMITTEE ON THE DISPOSAL OF THE DEAD.

Read before the American Public Health Association, held at Denver, Colo., October 1-4, 1895.

BY C. O. PROBST, M.D., CHAIRMAN.

COLUMBUS, OHIO.

The proper disposal of the dead is a matter which greatly concerns the living. The dead have been disposed of in various ways in different times and places; no useful purpose will be served by going into the history of the subject, and this report will be confined to the consideration of cremation and earth burial. The history and progress of cremation in the United States (there are no crematories in Canada) will be reported upon briefly, and an attempt has been made to summarize the laws of the various States and provinces, with respect to disposal of the dead, more especially as to sanitary considerations taken note of in such laws. Rules and regulations of State and provincial boards of health, as affecting this question, have also been given as far as possible.

The first crematory in the United States was established at Washington, Pennsylvania, in 1876, by Dr. F. J. Le Moyne. It was used for the first time on December 6 of that year, when the body of Baron de Palm was cremated. Dr. Le Moyne's crematory excited great local opposition, and this local feeling, apparently, was never overcome, for the only resident of Washington to be cremated in this furnace was Dr. Le Moyne himself. In 1884 this crematory was practically closed by the decision of the trustees to limit its use to those living in Washington County, and there have been no applications and no cremations there since. Thirty-eight bodies were cremated, twenty-nine males and nine females.

The second crematory was also in Pennsylvania, at Lancaster, and was opened Nov. 25, 1884. Three bodies were cremated in that year, thirty-six the following year, but not more than fourteen in any year thereafter. The secretary of the company, Mr. J. D. Pyatt, writes: "We do little work here now; we got in our work as pioneers, and have spent six or seven thousand dollars doing it, with no dividends." Eighty-nine bodies have been cremated, only nine being bodies of residents. Sixty-seven were males and twenty-two females. Death was due to contagious disease in thirteen cases.

The following year, 1885, the most successful of all the crematories in the United States was opened at Fresh Pond, Long Island, N. Y. Five bodies were cremated in that year, 82 the next, and in 1894 there were 254. To August 28 of this year there were 208 cremations, making a total of 1,554. Of these 1,084 were males and 470 females. Including phthisis pulmonalis, 290 died of contagious disease. It is interesting to note that 806 of those whose bodies were incinerated were born in Germany, 513 in the United States and the rest in the various countries of the world.

In 1886 Pennsylvania established her third crematory, and New York her second. The one in Pennsylvania was constructed at Pittsburg by Mr. Sampson, an undertaker. The number cremated to the end of 1894—the latest date available—was 100; 63 males and 37 females.

The second New York crematory is at Buffalo, and was opened with a test incineration Dec. 27, 1885. Eight were cremated in 1886, 37 in 1891, the greatest number in any year since, and 29 to September 5 of the present year. The total number is 250; 166 males and 84 females. One hundred and forty-eight were residents and 102 non-residents.

In 1887 three crematories were added to the list; one at Cincinnati, one at Los Angeles and one at Detroit. The Cincinnati crematory was opened June 22, 1887, and 11 were cremated that year. The number increased to 46 in 1894, and for 1895, to August 16, there were 44, making in all 314. Two hundred and fourteen of these were males, 100 females, and 38 were children under 15 years of age. Two hundred and forty were residents, 74 non-residents, and 62 died of some contagious disease. The Detroit crematory was opened Dec. 10, 1887. The greatest number cremated in any one year since, was 45 in 1893; the total number to April 20, 1895, was 183. Of these 125 were residents and 58 non-residents. One hundred and eleven were males and 72 females; 24, counting phthisis pulmonalis, died of some contagious disease. Only partial statistics were obtained from Los Angeles. The crematory was opened June 6, 1887. Seven bodies were cremated that year. The greatest number in any one year since was 41 in 1892. The total number to the end of 1894 was 182; 119 males and 65 females.

It is an interesting fact that the name of the President of the Cremation Society of Southern California, having its crematory at Los Angeles, is Dr. Wm. *Le Moyne* Willis.

St. Louis and Philadelphia established crematories in 1888. According to the report of the Bostonian, it is peculiarly fitting that Philadelphia should be well provided for the disposal of the dead. The Bostonian was showing a Philadelphia friend over Boston. The Philadelphian remarked: "You have a great city here, but you are not nearly so well laid

out as Philadelphia." "True," retorted the Bostonian, "but we doubtless will be when we are as dead as Philadelphia."

The Philadelphia crematory was opened in May, 1888. There has been a gradual increase in cremations, with 70 in 1894, and 75 for 1895 to August 14; the total number is 399, of which 264 were males and 135 females. Three hundred were residents and 99 non-residents. Twenty-six of those cremated died of a contagious disease.

The St. Louis crematory was opened in 1888, since which time to Sept. 18, 1895, 437 bodies have been cremated. The number has gradually increased from year to year, with 70 for 1894. Three hundred and forty of those cremated were residents, 97 non-residents. Three hundred were males and 137 females. None died of a contagious disease.

Baltimore established a crematory in October of 1889. Up to May 14 of this year only 84 bodies had been cremated; 57 males and 27 females. None died of a contagious disease.

In the same year a crematory was constructed on Swinburn Island for the destruction of the bodies of those dying of a contagious disease in quarantine or on vessels at New York. To the end of 1894, the latest information at hand, 109 bodies had been incinerated.

In 1890 a crematory was built at Troy, N. Y., by Mr. and Mrs. Earl for their only son, Gardner. To the end of 1894, 56 bodies had been cremated; 37 males and 19 females.

The following year, in March, Davenport, Iowa, erected a crematory. Thirty-six cremations have occurred there to April 20, 1895. Of these 27 were of males, 9 of females.

The same year, 1891, Mr. Wm. Osborn of Waterville, N. Y., erected and donated a crematorium to the Waterville Cemetery Association. Only 5 bodies have been cremated there to August 16, 1895; 4 males and 1 female, one being the body of a resident.

The year 1893 witnessed the building of crematories in three important cities: Chicago, San Francisco and Boston.

The Chicago crematorium was opened in December, since which time to August 27, 1895, 87 bodies have been incinerated. Of these, 54 were males, 33 females; 60 were residents and 27 non-residents. One person died of a contagious disease.

The San Francisco crematory was opened Nov. 12, 1893. On May 1, 1895, 200 bodies had been incinerated; 112 males and 88 females. One hundred and thirty of these were American born. Three died of a contagious disease.

Boston inaugurated cremation next to the closing day of 1893, the person cremated being a resident of Massachusetts. In 1894, 97 persons were cremated, 78 of them being residents of the State. In 1895 to April 22, there were 30, with 22 of them residents. In all there have been 118; a very good beginning. Here, as was to have been expected, women have had equal rights, (not rites) and 59 males and 59 females embraced the new faith of cremation. Four of the subjects died of diphtheria, 3 of influenza and 1 of typhoid fever.

The latest crematory to be constructed was the Odd Fellows Crematory at San Francisco. The first incineration took place June 25, 1895. Up to August 22, 28 bodies had been cremated; 18 males and 10 females. None died of a contagious disease.

The total number of persons cremated in the United States at the close of this inquiry was 4,261. Omitting Swinburn Island, from which information as to sex was not obtained, there were 2,783 males and 1,369 females.

The main reason for the great preponderance of males doubtless is the number of cremation societies that have been established, composed largely of males, whose members make provision for the cremation of their bodies at death.

Omitting Pittsburg and Buffalo, from which information could not be obtained, 526 of those who were cremated died of some contagious disease, about 13 per cent.

Nearly all of these crematories are managed and operated by joint-stock companies. The usual price for cremation is $25. The highest charge is at San Francisco, which is $60.

Massachusetts, Michigan, Pennsylvania, California and Ohio are the only States, so far as found, whose laws recognize cremation in any way, and Massachusetts seems to be the only one in which cremation is fully regulated and controlled.

The only objection urged against cremation, aside from sentimental reasons, is that cremation destroys evidence of crime. Cremationists claim that the extra precautions taken to verify the cause of death give, in reality, greater security against this than does earth burial, as ordinarily practiced. The usual precaution in this country is to require the affidavit of a physician, not necessarily in all cases the attending physician, "that to the best of his knowledge and belief there exists no reason why the deceased person should not be cremated." This is sworn to before a notary, or justice of the peace, who certifies that the affiant is by him known to be a physician of good standing. Several crematories accept bodies for cremation when accompanied only by the ordinary board of health permit, this permit being issued, however, only on presentation of a certificate from the attending physician as to the cause of death. It will readily be seen by those familiar with the usual methods of issuing certificates, that the opportunity this offers for concealment of crime is very great. Even an affidavit by the attending physician, with certificate of the notary as to his standing, when the body is brought from abroad, affords no adequate barrier against this danger.

In Massachusetts the location and construction of crematories must first be approved by the State Board of Health. The Board also establishes the regulations which shall govern their use; and the body of a deceased person may not be cremated until forty-eight hours after death, unless due to a contagious disease. In addition to the customary burial permit, which is issued only on certificate of the attending physician as to cause of death, there must be a certificate from the medical examiner of the district within which the death occurs. This applies to the States of Massachusetts, Connecticut and Rhode Island. Dead bodies from other States must be accompanied by the sworn statement of two physicians, each of whom must be a graduate of some "legally organized medical college," and one of whom shall have been the attending physician. Even this would not give very great protection in the case of dead bodies sent from Ohio, and some other States, where "legally organized medical colleges" are graduating some very disreputable persons.

Table showing Location, Date of Opening, etc., of Crematories in United States.

Location.	Date.	Number Cremated.	Residents.	Non-residents.	Male.	Female.	Number died Contagious Disease.	Charges. Dollars.
Washington, Pa.	1876	58	1	37	29	9	none.	
Lancaster, Pa.	1884	89	9	80	67	22	13	50
Fresh Pond, L. Is., N. Y.	1885	1,554			1084	470	280	25 to 50
Buffalo, N. Y.	1885	250	148	102	166	84		25
Pittsburg, Pa.	1886	100			63	37		
Cincinnati, Ohio	1887	314	240	74	214	100	62	25
Detroit, Mich.	1887	183	125	58	111	72	24	25
Los Angeles, Cal.	1887	182			119	63		
St. Louis, Mo.	1888	437	340	97	300	137	none.	25
Philadelphia, Pa.	1888	399	300	99	264	135	26	35
Baltimore, Md.	1889	84			57	27	none.	40
Swinburn Island, N. Y.	1889	109					109	
Troy, N. Y.	1890	56			37	19	none.	
Waterville, N. Y.	1891	5	1	4	1	4	none.	25
Davenport, Iowa	1891	36			27	9	none.	
San Francisco, Cal.	1893	200			112	88	3	60
Chicago, Ill.	1893	87	60	27	54	33	1	25
Boston, Mass.	1893	118	100	18	59	59	8	30
San Francisco, Cal.	1895	28			18	10	none.	

We may now turn our attention to earth burial, with special reference to the laws and regulations governing it in the United States and Canada.

The opinion is quite generally held by all classes of people, that crematories and earth burial, unless properly controlled, may become a menace to public health, and one is surprised to find that so little consideration has been given to the subject by legislative bodies. In more than half of the States, beyond making provisions for establishing and maintaining cemeteries, no attention whatever has been paid to the disposal of the dead. In but one or two States has the possibility of contamination of water supplies by drainage from burial grounds been considered; and few have by legislative control guarded the dangers attending the disposal of the body of a person dead of a contagious disease. A permit for burial, issued only after receipt of a proper certificate as to the cause of death, is absolutely essential to prevent dangers from contagion and to avoid concealment of crime; but the great majority of our States have made no provision for this. It is true that, as a rule, this measure is enforced by the local authorities in the large cities. In but few States have the health authorities been given any powers to regulate the location or use of cemeteries. Laws for the prevention of intramural burial have been enacted in several States, but they often fail in their purpose, the growth of cities gradually approaching and finally including the burial grounds.

A few States have provided against the dangers arising from the disinterment of bodies of persons who have died of a contagious disease. Three or four have regulated the depth of burial. Burial within churches is still permitted in the Province of Quebec. The laws of this province, however, provide against a danger which has not been recognized, so far as can be learned, in any other province or State. That is, permitting a body dead of a contagious disease, to be taken into a public receiving vault.

The laws of Massachusetts and New Jersey with reference to disposal of the dead seem to be superior, in most respects, to those of other States. A summary of these may be read, omitting, to save time, those of other States and provinces, which are included in the report.

Massachusetts: Boards of health may make all regulations which they judge necessary concerning burial grounds and interments within their respective limits; may close any cemetery or burial ground within the city or town they may deem necessary to protect the public health; may prohibit any person unless appointed an undertaker or otherwise authorized by the Board of Health from burying or moving a deceased person.

No deceased person can be buried without a permit issued by the Board of Health on receipt of a certificate of death by attending physician or coroner. (Laws of 1885–87.)

New Jersey: Location of new cemeteries and extension of old ones must be approved by the municipal authorities and the local board of health, subject to revision by the State Board of Health. Descriptive map must be filed with the State Board of Health. Top of outside coffin, for adults, must be buried four feet beneath the surface; for children three and one-half feet. This does not apply to properly constructed private vaults. Municipal authorities and boards of health are authorized to inspect cemeteries. Disinterment of dead bodies is forbidden between May 1 and November 1, except for purposes of criminal investigation. Forbidden at all times when death was caused by a contagious disease unless body is in a metallic hermetically sealed case, and then only by order and under supervision of local boards of health.

Cemeteries may be closed by Court of Chancery on application of municipal authorities, local or State Board of Health. (Laws of 1885.)

A certificate as to cause of death must be given by attending physician or coroner in all cases. In cities or other local municipal government a permit to bury must be obtained in exchange for the death certificate.

Local boards of health may prohibit public funerals where death resulted from a contagious disease. (Laws of 1888.)

Many of the State and local boards of health have supplemented or strengthened the laws of their respective States with reference to disposal of the dead; more especially with respect to the care of the bodies of those who have died of a contagious disease.

It will appear from the foregoing that our dead have been disposed of with but little control by any constituted authority, and without much attention to sanitary regulations; and yet the harm, apparently, has not been great, and perhaps none at all, except where burial was in the crowded parts of cities.

There is a growing feeling that the dangers apprehended from cemeteries have been considerably overestimated. Before much was known about bacterial agencies of disease, many evils which could only be conjectured were charged to cemeteries. As the science of bacteriology was gradually unfolded, an explanation of how cemeteries may produce disease was afforded by supposing that the germs of infectious diseases, buried with their victims, infected the air and water in their vicinity. Outbreaks of contagious disease near burial grounds were often attributed to this cause without seeking for positive proof.

More recently many investigations have been made to determine the viability of pathogenic organisms in the soil, and the possibility of their infecting surrounding water and air in earth burial of the dead. Koch, Kitasato, Heser, Esmarch and Petrie agree in discrediting the claims of Pasteur that the earthworm may bring the spores of anthrax, buried with cattle, to the surface and renew the disease in cattle feeding in such burial grounds. Dr. Petrie's experiments

showed that the bacilli of cholera, and typhoid fever, when injected into animals which were killed and buried, lived but a short time. Reimer's investigations in cemeteries at Jena did not show any increase of bacterial life along side or beneath dead bodies as compared with control ditches dug in similar adjoining soil. Proskauer, in Berlin, met with the same results.

The bacteriologic examination of wells in cemeteries has failed to demonstrate contamination. A series of monthly chemic analyses of the water from the wells in cemeteries of the city of New Haven, Connecticut, were made by Dr. Herbert E. Smith, in 1889–90. Summing up the results he said: "It would seem to justify the inference that a cemetery with a deep sandy subsoil would be very unlikely to contaminate the ground water at any considerable distance from the cemetery." This agrees with the conclusions of Professor Fleck, who examined the water from cemetery wells at Dresden.

In 1875 Dr. Adams, of Massachusetts, made an exhaustive report on disposal of the dead, which is published in the report of the Massachusetts State Board of Health for that year. He said: "In summing up this investigation, we can not avoid the conclusion that, so far as it goes, it shows that any injurious influence exerted upon the public health by burial grounds, as at present managed in this State, as well as throughout the United States, is almost unknown."

In spite of the lack of evidence to convict burial grounds of being a cause of disease we are far from urging that they are, under all circumstances, free from such danger. We have conditions very similar to earth burial in the deposit of fecal matter in holes in the ground. Bacteriologists tell us that the bacilli of cholera and typhoid fever are soon destroyed in such places, but we have many instances which seem to conclusively prove that a well near such a vault may be infected.

On the other hand, one of us has knowledge of two cities built on deep beds of sand and gravel where it has been the common practice for years to construct open cesspools equal in depth to the wells. Typhoid fever has not prevailed to any great extent in either of these places, and those still using well-water have not suffered more than those using the public supply, taken from another source. Doubtless the character and condition of the soil largely determine the danger in such cases, and such is probably true, to a greater or less extent, in earth burial.

From present knowledge we would summarize our conclusions follows:

1. Cremation is to be favored as a safe and cleanly method of disposing of the dead.

2. Cremation in the United States, at least for many places, needs further safeguarding to prevent concealment of crime.

3. Earth burial, under proper conditions, is also a safe and satisfactory method for disposal of the dead.

4. The location, preparation and use of burial grounds should be controlled by statutes, under the direction of boards of health.

5. Intra-mural burial should be prohibited; and a considerable space in which there should be no burials should be provided around the outer areas of cemeteries to prevent the encroachment of dwellings.

6. Cemeteries should have a loose porous soil, underdrained; and precautions be taken to protect sources of water or ice supplies from such drainage.

7. Closed vaults, and indestructible receptacles or coffins for the dead, should not be used, the body being permitted to return to dust as rapidly as possible.

8. Separate graves, with sufficient space between them, should be required.

9. No one should be permitted to dispose of a corpse without a permit from a proper authority, to be issued only after satisfactory evidence of the cause of death.

10. Only licensed undertakers should be permitted to dispose of the dead, and under such restrictions as may be imposed by health authorities.

11. The body of a person who has died of a contagious disease should not be permitted in a public receiving vault; and public funerals in such cases should be prohibited, special precautions being taken to guard against the conveyance of contagion by those who have been associated with the deceased.

PUBLIC STATUTES, AND REGULATIONS OF STATE AND PROVINCIAL BOARDS OF HEALTH IN RE-LOCATION AND REGULATION OF BURIAL GROUNDS AND DISPOSAL OF THE DEAD.

United States.

Alabama: Physicians required to give certificates of death to the county health officers. "No law requiring burial permit. Most cities and towns have ordinances requiring such permits." (Dr. Cochran, State Health Officer.)

California: The bodies of those 10 years of age and upward must be buried in graves six feet deep; of those under 10, five feet. Disinterment permitted only on order of board of health, health officer, coroner or mayor, issued on certificate from coroner or attending physician, giving cause of death, etc. Body must be inclosed in a sealed metallic case or coffin. (1878.) In incorporated cities or counties, burial permits must be obtained from the health officer or board of health issued on death certificate of attending physician or coroner. (Laws of 1889.)

Colorado: Cemeteries located in cities, towns and villages may be vacated by order of a county court on petition of the local board of health. (Act of 1893.)

Disinterment of dead bodies is forbidden except by permission of the State or local board of health. (Rules of State Board of Health.)

In the city of Denver, death certificate is required of physician or coroner, and burial permit must be obtained from the board of health. (Laws of 1895.)

Connecticut: Cemeteries not hereafter to be located within 600 feet of any ice pond, nor any ice pond to be located within 600 feet of any cemetery unless the ice pond is on higher ground. (Laws of 1889.)

No cemetery hereafter to be located within one-half mile of any reservoir furnishing a public water supply, and no such reservoir to be located within one-half mile of any cemetery. Subject to revision by county superior court. (Laws of 1884.)

Town registrar issues burial permit on receipt of death certificate given by attending physician or medical examiner.

In contagious diseases the undertaker must, in addition, give the registrar a sworn statement that the body has been prepared according to the rules of the State Board of Health. (Laws of 1893.)

Delaware: "The bill passed by our Legislature regulating the disinterment, burial and removal of dead bodies in this State is lost, and therefore we have no law upon the subject except in the city of Wilmington." (Dr. Frazer, Secretary State Board of Health.)

Florida: "No laws on burial, or regulating location or management of cemeteries. In large towns regulated by ordinance." (Dr. Porter, Secretary State Board of Health.)

Rules of State Board of Health provide that dead bodies shall not be disinterred between April 15 and December 1. When dead from contagious disease not until two years after death, and then placed in a "practically air-tight case."

Illinois: Trustees may decide and direct the depth that graves shall be dug. (Laws of 1887.)

Rules of State Board of Health prohibit public funeral when death is due to a dangerous contagious disease.

Indiana: "No State laws regarding disposal of the dead. Burial permits only required in large cities." (Dr. Metcalf, Secretary of the State Board of Health.)

Rules of State Board of Health prohibit cemeteries within less than one mile of corporation limits of any town or city. Require private burial (coffin to be unopened) as soon after death as possible, when death is due to a contagious disease.

Iowa: Municipal corporations have power to regulate the disposal of the dead. Rules of the State Board of Health recommended for adoption of cities, towns and local boards of health, provide for a burial permit issued by clerk of the board of health on receipt of certificate of death by attending physician or coroner.

Rules provide that disinterment shall only be permitted by authority of State Board of Health. No disinterment permitted when death is due to Asiatic cholera, smallpox, scarlet fever, leprosy, typhoid (?) fever or yellow fever.

Kansas: Rules of State Board of Health require that in death from contagious disease the body shall be wrapped in a disinfected cerecloth, inclosed in an air-tight coffin and allowed to remain in the sick room until removed for burial. Public funerals in such cases not allowed.

Disinterment only on permission and under direction of local board of health.

Maine: Cemeteries shall not extend nearer than twenty-five rods to any dwelling house against written protest of the owner." (Dr. Young, Secretary of Board of Health.)

Death certificate obtained by undertaker, who presents it to the city or town clerk, who issues burial permit.

Certificate is not required where it is impracticable to obtain it within reasonable time after death. (Laws of 1895.)

Massachusetts: Boards of health may make all regulations which they judge necessary, concerning burial grounds and interments within their respective limits; may close any cemetery or burial ground within the city or town that they may deem necessary to protect the public health; may prohibit any person unless appointed an undertaker, or otherwise authorized by the board of health, from burying or moving a deceased person.

No deceased person can be buried without a permit issued by a board of health on receipt of a certificate of death by the attending physician or coroner. (Laws of 1885–87.)

Michigan: The trustees of any incorporated village, or council of any city, may cause any cemetery to be vacated when it endangers the health of the people living in its vicinity, but not during the months of June, July, August or September. (Sec. 4790 of the R. S.)

No person dead of any dangerous communicable disease may be brought into any township, city or village, without a special permit from the board of health or health officer, and under the health officer's supervision. (Laws of 1895.)

Minnesota: Physicians are required to report to local boards of health the death of any of their patients who shall have died of a contagious disease within twenty-four hours thereafter.

Corpse shall not remain unburied longer than four days, or if death is caused by contagious disease not longer than twenty-four hours after death, without permit from local board of health. If death is due to a contagious disease the said board may cause the body to be disinfected, and tightly sealed in a coffin, which shall not be opened. Funeral in such cases must be private. (Laws of 1883.)

Nevada: It is unlawful for an undertaker or other person to bury any deceased person who has died in any incorporated town or city in the State without having first obtained a certificate from the attending physician or coroner. This permit, before burial, to be returned to the coroner of the county where the deceased died.

County commissioners may authorize disinterment of dead bodies when, in their judgment, it will not endanger the public health, provided the person to be disinterred did not die of a contagious or loathsome disease. (Laws of 1865.)

New Hampshire: No cemetery shall be laid out within twenty rods of any dwelling house, store or other place of business without owner's consent. (Chapter 51, Sec. 2, R. S.)

Cause of death must be certified to by attending physician. "No dead body may be buried without a permit. In cities no permit issued till application has been passed upon by the board of health." (Dr. Watson, Secretary of State Board of Health.)

New Jersey: Location of new cemeteries and extension of old ones must be approved by the municipal authorities and the local board of health, subject to revision by the State Board of Health. Descriptive map must be filed with the State Board of Health.

Top of outside coffin, for adults, must be buried four feet beneath the surface; for children, three and one-half feet. This does not apply to properly constructed private vaults.

Municipal authorities and boards of health are authorized to inspect cemeteries.

Disinterment of dead bodies forbidden between May 1 and November 1, except for purposes of criminal investigation. Forbidden at all times when death was caused by a contagious disease unless the body is in a metallic hermetically sealed case, and then only by order and under supervision of local board of health.

Cemeteries may be closed by Court of Chancery on application of municipal authorities, local or State Board of Health. (Laws of 1885.)

A certificate as to cause of death must be given by attending physician or coroner in all cases. In cities

or other local municipal government a permit to bury must be obtained in exchange for the death certificate.

Local boards of health may prohibit public funerals where death resulted from a contagious disease. (Laws of 1888.)

New Mexico: Municipal corporations may establish and regulate cemeteries within or without corporation; may cause cemetery to be removed and prohibit them within one mile of corporation. (Laws of 1884.) Burial prohibited within 250 yards from either side of a river or stream. (Laws of 1889.)

An act of 1889, appointing boards of health, forbids carrying a contagious corpse through streets or roads, or into any church with coffin open and body exposed. "This was a common practice with the Mexicans, even in smallpox." (Dr. Atkins, Secretary of Territorial Board of Health.)

New York: Local boards of health are required to "prescribe sanitary regulations for the burial and removal of corpses."

The undertaker is required to secure a certificate of death from attending physician or coroner, and must present this to the local board of health to obtain a permit for burial or removal. (Laws of 1893.)

The Board of Supervisors of any county may make such regulations in regard to burials as the public health may require.

No cemetery shall be located within less than 100 rods from any dwelling, without the owner's consent. (Laws of 1854.)

North Dakota: "No law regulating location or use of cemeteries except that bodies must be buried with four feet of earth on top of the coffin." (Dr. Montgomery, State Superintendent of Health.)

Corpses must be buried within four days after death, and where death was due to a contagious disease, within twenty-four hours after death, except by permission of the local board of health. In contagious diseases the funeral shall be strictly private, and only such hearses or other vehicles shall be employed in the removal of the body as may be authorized by the board of health.

Undertakers are required to have death certificate from attending physician or undertaker, which he files with the board of health after burial of the body. (Laws of 1893.)

Ohio: Cemeteries not permitted to be established within 200 yards of any dwelling house, unless owner consents. In enlarging a cemetery it shall not be nearer than 100 yards to any dwelling house erected subsequent to the location of the cemetery. (Laws of 1891.)

Disinterment of dead bodies prohibited from April to October, and at all times when death was due to a contagious or infectious disease. (Laws of 1894.)

Villages shall not have the power to prohibit interments in any cemetery in their limits unless it can be shown that such interments are detrimental to the public health. (Laws of 1889.)

The erection and maintenance of crematories authorized, but their use prohibited nearer than 300 yards to any dwelling house without owner's consent. (Laws of 1893.)

No person is permitted to remove or convey a corpse for burial to or from any city, village or township, without a permit from the local board of health. (Laws of 1893.)

Rules of the State Board of Health prohibit public funerals in deaths from contagious disease, prohibit disinterment of corpse without a permit from that Board.

Oklahoma Territory: Rules of Territorial Board provide that no cemetery shall be located nearer than one mile of any town, city, or source of any public water supply or water works.

Disinterment between December 1 and April 15 on permission of the local board of health indorsed by Territorial Board.

Bodies dead of a contagious disease can not be disinterred until three years after burial unless the burial grounds in which they are placed should become a menace to public health, and then only by consent of local and Territorial Board and under supervision of the local board.

Public funerals prohibited when death was due to a contagious disease.

Pennsylvania: Unlawful to bury the dead in land draining into any stream furnishing in part or in whole the water supply of any city. Not applicable to land now used for burials. (Laws of 1895.)

Cremation of a dead body forbidden without a permit from the health authorities of the place where the body is cremated. Permit only granted on presentation of death certificate from attending physician or coroner, signed by undertaker and person in charge of the crematory.

Rules of State Board of Health prohibit public or church funeral in death from contagious disease. Prohibit exhumation between May and October; and in case of contagious disease only by permission of and under conditions imposed by the State Board of Health.

Tennessee: No law on the disposal of the dead other than one prohibiting burial within municipal corporations or taxing districts containing 36,000 population.

"Most cities and towns have ordinances requiring permit for burial." (Dr. Lindsley, Secretary State Board of Health.)

Texas: "Burial regulated by local authorities. Permit for burial required in every community." (Dr. Swearingen, State Health Officer.)

Vermont: In establishing or enlarging burial grounds they must not be within twelve rods of any dwelling house, and remains must not be buried within twenty rods of such house. (Laws of 1878.)

Private burial required immediately after death of any person dying of Asiatic cholera, smallpox, typhus fever or yellow fever. (Laws of 1892.)

Rules of State Board of Health require private funeral where death resulted from a dangerous contagious disease.

Virginia: Cemeteries prohibited from being established within the limits of any incorporated city or town, or within 400 yards of any residence without consent of the owner.

Washington: Rules of the State Board of Health require interment within twelve hours after death in case of smallpox, and private funeral in all contagious diseases.

West Virginia: "No laws or regulations regulating disposal of the dead. No permit for burial. No special rules for prevention of contagion in connection with disposal of dead bodies." (Dr. Baker, Secretary State Board of Health.)

Wisconsin: Cemeteries may not be established within one mile of any erected building within the limits of any recorded plot in any city or village;

nor established outside any city or village within 200 rods of any inhabited dwelling in any recorded plot in any city or village, without the consent of the municipal authorities in such city or village. (Sec. 1454. Laws of 1887.)

Certificate of death required of attending physician. "Not enforced outside the city of Milwaukee." (Dr. Wingate, Secretary State Board of Health.)

Rules of State Board of Health require burial within twenty-four hours after death when due to a contagious disease.

Canada.

Manitoba: The Provincial Board of Health is authorized to provide rules for the safe and speedy interment of the dead, and conduct of funerals for the prevention of contagious disease.

Attending physician required to notify the health authorities of deaths caused by a contagious disease.

New Brunswick: Rules of the Provincial Board provide for private funeral where death is due to a contagious disease. Body to be disinfected, to be inclosed in a metallic or air-tight coffin which must not be re-opened. Coffin not to be taken into any church.

In cities and incorporated towns, permit for burial must be obtained, which is issued only on satisfactory statement of cause of death, etc.

Nova Scotia: No law on the disposal of the dead, other than ordinary cemetery regulations.

No special rules of Board with reference to burial in contagious diseases.

In city of Halifax, death certificate and burial permit required. (Dr. Reid, Secretary Provincial Board of Health.)

Ontario: There are no laws relating to the burial of the dead except those which govern cemetery companies, and those which relate to the burial of contagious corpses. Proposed regulations for burial and transportation, are still under consideration by the Government. (Dr. Bryce, Secretary Provincial Board of Health.)

Quebec: Cemeteries located by diocesan authorities on request of their parishoners. Must be as far as possible beyond probable limits of town or village, on elevated land inclining opposite to the town or village to prevent contamination of drinking water.

Disinterment of dead bodies permitted on order of Judge of Superior Court, but not more than one body at a time, between June 1 and September 1.

Where death is due to contagious disease, disinterment permitted only after five years, or such time as may be fixed by the Provincial Board of Health.

Superior or diocesan ecclesiastical authority may prohibit interment in any cemetery or church.

Bodies may be interred in church if coffin is covered with four feet of earth, or placed in stone vault eighteen inches thick, or brick twenty inches thick, disinfectants to be used in the coffin.

Where death is due to contagious disease, church interment or vault deposit is prohibited. Bodies must be in separate graves with four feet of earth over coffin. In non-contagious diseases three feet of earth permitted. Interment in private vaults—in contagious diseases—permitted if body is in hermetically sealed coffin.

Provincial and local boards of health may prohibit dead bodies being taken into a church during an epidemic of a contagious disease on written permission of a local or diocesan ecclesiastical authority. (Chapter XLVIII as amended.)

Except in cases of suspicious cause of death, for which coroner's permit is required, all permits for disposal of the dead are given by the clergyman of the deceased's denomination. (Dr. Pelletier, Secretary Provincial Board of Health.)

In the following States and Territories no laws could be found which in any way relate to the sanitary aspect of the disposal of the dead: Alabama, Arizona, Arkansas, Delaware, Florida, Georgia, Idaho, Indiana, Indian Territory, Kansas, Kentucky, Louisiana, Maryland, Mississippi, Missouri, Montana, Nebraska, North Carolina, Oregon, Rhode Island, South Carolina, South Dakota, Texas, Utah, Washington, West Virginia, Wyoming.

ON THE DISPOSAL OF THE DEAD, WITH SPECIAL REFERENCE TO THE PREVALENT PRACTICE OF EMBALMING.

Read before the American Public Health Association.

BY A. WALTER SUITER, M.D.

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HERKIMER, N. Y.

From remotest antiquity to the present time, topics relating to the disposal of dead bodies have been universally interesting. No subject has been more carefully considered from all points of view, and yet it is not inconsistent with facts to state that no material advancement as to methods of preservation or final disposition has been made over those which were practiced more than twenty centuries ago. Indeed, there is a growing belief in the public mind that to return to the custom generally in vogue previous to the Christian era (cremation), would solve many perplexing problems with which sanitarians are not unfamiliar.

Anciently, in Egyptian countries where the surrounding atmospheric conditions were favorable, the dead bodies of human beings were embalmed and the mummified remains indefinitely preserved. The Jewish nations entombed their dead in rock-bound receptacles called sepulchers. In Greece and Rome the practice of cremation obtained, while it appears that we probably owe to the ancient Chinese the origin of the common method of the present date, viz: that of interment or earth-burial.

For ages this absorbing subject has been surrounded, modified and in various ways influenced among people of all classes, conditions and climes by vexatious questions relating for the most part to sentimental, religious, sanitary and medico-legal considerations.

It will be the purpose of this paper, in the briefest manner consistent with intelligent description, to invite the attention of this body to some questions which have especial reference to the two last named considerations.

According to early chronologic records, no branch of art was cultivated in higher degree than that of the embalmment of the Roman corpse. Affection and superstition, always the greatest motive powers of the world, together with the prevalent fanciful ideas of death and subsequent everlasting life, all combined to give the greatest prominence to the extraordinary, elaborate, and costly methods which were employed in the remote periods of civilization

for the preservation of dead bodies, in order that they might be kept uninterred. As to means and methods, they were chiefly evisceration and cleansing, salting and bituminizing, the insertion in the emptied three great cavities of antiseptic balms and spices, desiccation by favorable atmospheric surroundings and the subsequent bandaging with expensive muslin and linen fabrics, painting, gilding and marking of the hermetically sealed cases provided for their final reception—all of which consumed a period of time amounting to seventy or seventy-five days. The final result of this process of mummification was to render the body as inoffensive in a sanitary sense as a block of wood or stone, and specimens of the remains of ancient kings and noblemen have been discovered and are on exhibition who lived and flourished at various epochs from 4,000 years before the time of Christ, when the opposition of the priests inhibited the custom and caused the complete decadence of the art and its consequent abandonment, until the discovery of the circulation of the blood suggested an easier, less costly and quicker method for the accomplishment of the desired purpose.

The great anatomist and surgeon, William Hunter, in the latter part of the eighteenth century, practiced the injection of essential oils through the principal arteries for the preservation of anatomic subjects, but it was not until about the year 1835 that antiseptic solutions were used in this manner for the purpose of embalming, when the custom was inaugurated, simultaneously it is said, by Drs. Lauth of Strasbourg, Franchini of Naples, and Gaunal of France. Various substances were then used, as chlorid and sulphate of alumina, arsenic, zinc and mercury—the preservative powers of which had been established. Since that time to the present date nearly every substance known to have properties in any degree antiseptic when applied to animal tissues has been used for the purpose, and it would be quixotic to attempt the enumeration of the various formulas which have been from time to time proposed. It is perfectly proper to state, however, that taking the customs and achievements of the people of ancient times in this regard for a standard, the modern practice of embalming has been steadily retrograding in skill and usefulness by being placed, without legal control or restriction, almost entirely in the hands of the ordinary undertaker, who is ignorant in most instances of the principles involved. The practice of injecting the blood vessels has undergone of late a degenerative change. As a consequence of the hasty and superficial manner in which this operation is now performed, circumstances are too frequently encountered which are a menace alike to the welfare of society in general and to public sanitation, and it is the special purpose of this paper to call attention thereto, with a view to securing the indorsement of this great and influential organization to the effort which has been and is being made in the State of New York to regulate the practice by legal enactment, to be followed, it is hoped, by every other State in the Union.

I presume there are very few men of experience present who will not join me in asserting that the method of embalming at present in use by the so-called funeral director, is not worthy of the name. It may be briefly described as follows: theoretically, and practically, in some cases, one of the principal arterial branches of the body (usually the brachial near the elbow bifurcation) is exposed and laid open with questionable skill, and a variable quantity of one of the innumerable fluids (which almost invariably contain in composition one or more or all of the preparations of mercury, arsenic, zinc and carbolic acid) is pumped by means of a syringe into the artery, supposedly in a direction that the blood naturally flows.

More often, and almost invariably in remote districts, this process is carelessly modified, so that the operation consists in simply pumping the liquids into the thoracic and abdominal cavities through a trocar, and also by means of rubber tubing into the rectum and *per oram* into the stomach. It is supposed that the result of this is to preserve the body in a sanitary and presentable condition for ceremonial purposes previous to burial. There is little doubt that if the proper injection of the blood vessels is carefully done with the required anatomic skill, such a result could be achieved with satisfaction, but it is obvious that when done in the incomplete and unscientific manner just referred to, the preservative effect is almost, if not quite *nil*, and if it were not for the ordinary precautions commonly practiced by the friends of the deceased themselves, the corpse would in most instances become a public nuisance in high degree before the final disposition.

The growing tendency to this careless and superficial treatment on the part of the undertaker, without legal regulation to obviate it, is the doorway to an enormous and systematic deception—a commercial fraud, in fact, as a comfortable fee is charged for the service. To illustrate, I will not attempt to burden my remarks by citing numerous examples, which might readily be done, but will simply mention one familiar case which is well in point, because it was an instance where inutility was abundantly demonstrated when every facility was offered and the conditions were unusually favorable. I refer to the notable case of the late General Grant, whose lamented death, although for a long time previous an anticipated event, was a national calamity. It would naturally be supposed that in such an instance extraordinary precautions would be taken to preserve the remains for the elaborate and extensively planned ceremonies incident to the occasion, and presumably the body was embalmed, and doubtless with the best skill obtainable. A few days later, when the funeral train reached Albany on its way from Mount Macgregor to the final resting place at now famous Riverside Park, a countless multitude of interested and admiring people were shocked to observe that no semblance of the well-known features of the distinguished military chieftain was recognizable. Suggillations, together with many other evidences of rapidly advancing decomposition, were apparent, in spite of the fact that diligent effort was made to conceal them. There can be no doubt that the public health was in great degree endangered by the unpleasant circumstances.

This is typically illustrative of frequent occurrences of the kind in common observation, and I am led thereby to feel justified in declaring that there is a strong argument apparent herein in favor of legislation of such a character as will lead, at least, to the modification, if not the prohibition of the so-called embalming process, which in a great proportion of instances neither accomplishes the intended purpose to prevent putrefactive changes with their

attendant odors and appearances, nor properly conforms to the common principles in public health administration.

The other phase of this subject, to which I desire to call attention, might with propriety be said to deal rather with *public morals* than with *public health*, but it seems that no apology is due for the reference, as those two titles so closely merge into each other in practice as to suggest that the medico-legal aspect comes properly within the scope and purview of the fundamental principles of this organization.

A case which I here quote from one of my previous papers[1] will also serve as a type in illustration:

Mr. E. A. P., a medicine vendor, aged about 75 years, a short time after marrying his third wife died with somewhat obscure symptoms after an illness of seven days. Some time after his burial, suspicion was aroused on the part of his relatives that his death was not the result of natural causes, and an investigation was instituted. I was employed by the authorities to exhume the body and ascertain, if possible, the actual cause of death. The body was found to be partially decomposed. The viscera of both the thoracic and abdominal cavities was carefully removed and properly prepared for subsequent chemic analysis, with a view to the establishment of the presence of poisons.

The analysis demonstrated unmistakably the presence in the materials examined of arsenic, mercury and zinc in large and lethal quantities. About this time I was informed in a casual manner that the body had been embalmed by the undertaker who had charge of the interment and, upon inquiry, it was ascertained that such was the case. The body had been treated in the following manner: A so-called embalming fluid was injected into the principal artery of both arms, and openings were made into the thoracic and abdominal walls through which a quantity of the same liquid was thrown into each of these great cavities. Inquiry was made of the manufacturers of the liquid as to its composition. They admitted that it contained in solution the chlorid of zinc and bichlorid of mercury, but denied the presence of arsenic in any form. A sample of the fluid was then procured and analyzed. The analysis revealed that it contained, beside other unimportant ingredients, the very salts and compounds found in the remains —those of arsenic, mercury and zinc—the revelation of, and testimony upon which, together with other suspicious facts were to be relied upon by the prosecuting officers to constitute the *corpus delicti* in the action. It was therefore impossible to determine whether these poisons were introduced into the body before or after death and, for obvious reasons, the case was dismissed from the courts in consequence, although after a subsequent careful re-examination of the suspected tissues by cutting them into fine pieces and repeatedly washing them in chemically pure water until all traces of the poisons were lost in the washings, and the remaining substances after being dried and analyzed still showed the presence of the metals mentioned, thus indicating probable ante-mortem absorption, no chemist would dare to express a positive opinion that, beyond reasonable doubt, the case was one of ante-mortem or post-mortem poisoning.

This is a striking example of cases which have been occurring in great numbers in recent years and are at present increasing in frequency. I do not hesitate to venture the opinion that there is no chemist of any considerable medico-legal experience who has failed to meet with similar instances, and the subject is now receiving the careful attention of many lawyers, judges, physicians, prosecuting officers and, to some extent, legislators, with a view to the enactment of such laws relating to the disposal of dead bodies as will insure proper protection in this respect and meet, at the same time, the requirements of sanitation, with due and proper regard for the demands of sentiment.

The menace to the welfare and safety of the public is apparent in the premises indicated in this case, and I feel sure that its various relations will be at once appreciated.

It seems that no one can fail to observe the opportunity offered herein, to a criminally disposed individual, to commit and subsequently cancel the crime of murder by poisoning—it simply being necessary that he should make sure that the body of the victim is treated in the manner referred to. That this opportunity is frequently taken advantage of at the present time is a well-known and indisputable fact among those of us who are concerned in such investigations, and I might consume the entire time of this session by reference to cases of such character which have come within my knowledge during several years past, and while the subject of relative legislation has been pending in my State.

Obscurity of symptoms leading to confusion as to diagnosis, lack of suspicion, together with the fact that the perpetrator is frequently able to control the extent and character of the medical attendance; the ease with which a careless and inefficient undertaker may be procured to make himself, unwittingly, a *particeps criminis*, all combine to favor the accomplishment of a criminal purpose, especially if it is the result of intelligent design as is generally the case.

It is a remarkably suggestive fact in this connection that between the years 1858 and 1892 not a single case of murder by poisoning was tried in the courts of the great city of New York. Is it reasonable to suppose that no such murders were committed in that city for a period of about thirty-five years? The statistics of London and Paris showed an average of three such cases yearly during that time. It will be observed that in consequence of this pernicious practice of embalming it is just as difficult to establish the *innocence* as the *guilt* of persons who may be accused.

By the toleration of the law, or the want of specific legal direction, this practice of alleged embalming has come to be an enormous offense to the public health and to certain other public interests, and the subject is worthy of the most careful attention. Ignorant men are taught, or teach themselves to believe, that the injection of a quantity of irritant metallic poisons in solution into the interior of the body anywhere is sufficient to effect preservation and secure their fee, and embalmment *secundum artum* is now practically fast growing to be a thing of the past in this country. Gallons of poisonous solutions are pumped into bodies indiscriminately, which are in an incredibly short time imbibed by other bodies in cemeteries, saturate, and are absorbed, by contiguous soils and streams, and also wells that are fed by subterranean waters which receive the percolations of graveyards filled with bodies thus treated. For example, a recent examination of the waters of Scajaquada creek which flows through Forest Lawn Cemetery in the city of Buffalo demonstrated the presence of considerable quantities of arsenic of the kind commonly used in the prevalent method of embalming.

In the belief that hasty treatment is necessary to obtain the preservative effect of the arsenical solutions, now universally employed, the undertaker, in the absence of proper legal requirement to the contrary, seldom awaits the issuance of the death certificate, and I am rarely called to make an autopsical examination that I do not find that his operation has preceded and in fact superseded mine.

The movement for the purpose of bringing about

[1] Transactions Medical Society of State of New York, 1888.

controlling legislation in these circumstances began in 1888 and was the outcome of a paper which the writer had the honor to read before the Medical Society of the State of New York. A bill with prohibitive provisions was introduced into the Legislature with the approval of the State Society, and its Committee on Legislation was directed to use all proper means to effect its passage. This bill was violently opposed by the State Undertakers' Association and persons engaged in the manufacture and sale of the objectionable solutions used. Although the praiseworthy object of the measure was so far appreciated by the legislators that it was passed in an unusually rapid manner to an advanced parliamentary standing, the opponents by superior political tactics succeeded in preventing its being placed upon its passage and it accordingly died, for that session, in the committee room. The public attention was attracted to the proposition, however, and favorable efforts were at once undertaken by many eminent persons who readily recognized the importance of the subject, including judges, health authorities, lawyers, chemists and physicans.

Two years later, another bill was introduced in the form of an amendment to the penal code. This was not so sweeping in character as to the prohibitive restrictions of the former bill, but permitted of embalming by "the injection of any substance into the body only with the written consent of the attending physician and of the coroner having legal custody;" prohibited "the injection of or placing upon the body of any solution containing arsenic, zinc, mercury or carbolic acid, except in cases of persons dead from contagious diseases by officers of boards of health, or for the preservation of bodies for dissection in legalized medical colleges."

This bill was actively advocated by a large number of the friends of the reform, and able addresses were made at the hearings by Professor Withaus of New York, Hon. Tracy C. Becker, the President of the State Bar Association; Professor Doremus, Hon. Clark Bell, Judge Brady and others. The bill was favorably reported by the committees of both Houses to which it was referred, but owing to the vigorous efforts of its opponents in the lobby it failed of passage, thus demonstrating once more the truth of the expression so familiar to sanitarians that "politics and science do not live upon the same street."

The measure has since been pending and it is understood that a renewed and determined effort to correct the evil will be made during the coming winter with great prospect of success; as the sanitary phase of the subject has become so apparent by the abuse of the practice previously referred to, that a general regulation of the disposal of dead bodies is believed to be most urgently demanded.

The fact that this Association has very pertinently established a standing committee for deliberation upon topics relating to the subject under consideration is regarded by the friends of this reform as a very favorable circumstance, as it is believed that all the associated important and vexatious questions relating thereto will be considered from all points of view, in connection with the work of the committee, and that without doubt the potent influence of this great organization may be secured to bring about the enactment of laws with uniformity of requirement, covering the preparation for burial, cremation and transportation of all dead bodies. These laws should have an intra-State, inter-State and international character, and I beg to remark that the Association could not at the present time lend its powerful aid to a project of vaster or more salutary importance to the public weal.

I trust sincerely that I have succeeded by this hastily prepared paper in presenting the legislative part of my subject in a sufficiently comprehensive manner, so that the way may seem clear to a formal reference to the committee, with instructions to report a formula of indorsement to be acted upon by the Association at this meeting.

I have thus far said nothing concerning the innocuous substitutive methods which might be proposed to remedy the great evils which it has been the purpose of this article to expose. The argument most commonly advanced by the so-called funeral directors in opposition to the passage of the restrictive acts proposed is that they should not be compelled to submit to the hardship of relinquishing the use of the arsenical fluids which have been depended upon so long, when no efficient substitute can be proposed. Every chemist present knows that such an argument can not be sustained. The truth is that it is the *cheapness* of these mineral substances in solution which chiefly recommends them for this purpose. These fluids are supplied for, not to exceed 30 cents per gallon by the manufacturers, and it is the interesting difference between the cost of one or two gallons hastily thrown into the mouth and rectum (as is now the almost universal practice of the ordinary undertaker) and the probable $30 fee that furnishes the motive for such an argument.

I am sure that every scientific gentlemen of experience in this audience will join me in the assertion that at least a score of substances might be mentioned as substitutes which have far greater preservative power than the mineral substances now in use. The cost would doubtless be greater in the case of most of them, but in view of the importance of the subject, the slight reduction in the profits of the undertaker would, I think, be tolerated by the public. Even this objection would in due time be adjusted by commercial competition and the relations of demand and supply. It must constantly be borne in mind, however, that no substance, whether miscellaneous or otherwise, would properly meet the sanitary requirements of the occasion that is not properly applied by its scientific introduction and distribution throughout the entire circulatory system of the body; and what is aimed at in the proposed restrictive law is to make it a penal offense to do anything short of it, along with certain specifications of the materials which shall be used.

It seems apropos to call attention at this point to a recently devised burial casket which is designed to meet some of the objections which can sanitarily be urged against most of the receptacles now made use of for transportation and burial. It is the invention of Dr. J. P. Hill, of Buffalo, and is constructed entirely of glass with a tapering circular opening at one end only. An end piece with grooved edges is fitted and made fast to the open end. In lieu of a description I will pass a perspective and diagram view of the instrument which I have obtained from the inventor, and which will convey an excellent idea of its apparent merits. The caskets will weigh from twenty to sixty pounds according to size.

It may be claimed for it, and I believe not extrava-

gantly, that it is superior because it is cheap, light and durable; that it can be completely disinfected without trouble and can be made absolutely air- and gas-tight; that the body may be preserved for ceremonial purposes and transportation a reasonable time without embalming; that it prevents saturation of the soil and pollution of the atmosphere in the vicinity of cemeteries, protects the remains from action of soil, water, worms, etc., and that it may be cremated with the corpse.

It appears that this would solve the problem presented by the paper of Dr. Griffith at the Montreal meeting, as there would be no possibility of contagion from it and it is cheap enough to be within the reach of all classes.

In conclusion, permit me to state that the principal propositions for which I contend in the foregoing remarks are as follows:

1. That the scientific preparation of dead bodies has degraded in recent years, to the extent that the prevalent system as now carelessly practiced by the majority of undertakers is inefficient, and in many instances unsanitary.

2. That it constantly leads to complications in criminal prosecutions, and entirely precludes the possibility of accurate medico-legal investigations—thus constituting a menace to the welfare of society.

3. That salutary and non-complicating substitutes for the materials employed are available, and that thereby the abuse of the embalming process may be entirely and satisfactorily corrected.

4. That the great importance of this subject merits the careful attention of this Association through its Committee on the Disposal of the Dead, and that proper legislation for restriction and control should be earnestly demanded in the interest of public sanitation and the public weal.

A CASE OF QUADRUPLETS.

BY FRANK A. STAHL, M.D.

DEMONSTRATOR OF OBSTETRICS, RUSH MEDICAL COLLEGE; FELLOW CHICAGO GYNECOLOGICAL SOCIETY, CHICAGO.

A case of quadruplets occurring but once in 350,000 to 400,000 births, where there was no trace of heredity; where labor, with the exception of rupturing the membranes, was normal; where, notwithstanding the plural fetuses, none presented in a manner compromising the delivery of the other. The interesting, theoretical, as well as practical study of such a case as a whole possesses sufficient intrinsic value to warrant even a superficial presentation of the case. The case occurred at home under poor circumstances, unfortunately away from the advantages of a maternité and a couveuse, and was attended by a midwife. I saw the case upon the third day.

The husband, Patrick C., is a laborer, aged 32 years, a native of County Mayo, Ireland. His height is 5 feet, 11 inches; weight 190 pounds. Physically he is well developed. There is no trace of multiple pregnancy in his line.

The wife, Catherine C., is aged 33 years, a well proportioned woman, 5 feet, 8 inches in height, and weight 180 pounds, also a native of County Mayo. There are no anatomic deviations apparent in her development; there is no trace of hereditary multiple pregnancies in her line. Her previous labors, all normal, were as follows:

1. Para Partus maturus, child now 12 years old.
2. Para Partus immaturus, child dead.
3. Para Partus maturus, child now 8 years old.
4. Para Partus maturus, died, 2 years old.
5. Para Partus maturus, now 4 years old.
6. Para Partus maturus, now 2 years old.
7. Para Partus prematurus, the present quadruplets, all dead.

Antelabor Period.—She noticed with some degree of anxiety her unusually (for that period of pregnancy) large abdomen, but as she continued able to be about thought that things must be as they should be, though toward the latter days of her pregnancy she entertained some suspicion that there might be more than one intrauterine. Also, toward the last, a tendency to swollen limbs (pressure obstruction) was noticed, but never to any serious extent; otherwise nothing of any moment presented during the pregnancy. On Monday, Sept. 30, having just passed the eighth-month period of pregnancy, Mrs. C. accompanied her little boy to the dispensary to have a scalp wound dressed. As the surgeon removed the dressings, catching sight of the bloody bandages and of the wound, she fainted and fell to the floor. I could not elicit whether in falling she fell with abdomen to the floor or with back to the floor. After recovering she made her way home, riding a part of the way. That Monday evening and next Tuesday morning she felt very faint and tired, and toward Tuesday noon she experienced a slight bearing-down pain. At irregular periods she continued to feel the slight bearing-down pains until the noon of Wednesday when, as she states, real labor pains commenced.

The Labor.—Wednesday, Oct. 2, 3 P.M., the first neonatus, vertex presentation, was delivered; the second, breach presentation, followed about 4 P.M.; the third, breech presentation, about 5 P.M.; the fourth, also breech presentation, following at about 6 P.M. With the fourth neonatus came the mass of secundines. There was no hemorrhage of any consequence. Allowing for the fear and dread of the parturient and the Teutonic excitability of the midwife under the circumstances, I gather from the description received from both mother and attendant that the deliveries were without difficulty and all spontaneous, with this exception that the attendant found it necessary to rupture each sac as it came down, stating that the membranes were unusually tough. This toughness of the membranes and their artificial rupturing is often mentioned in the histories of these cases. It would seem one of nature's methods of throwing around each fruit a greater safe-guard, a stronger protection than usual, to assist, perhaps, in preventing so far as possible a "conflict of the fittest."

The Secundines.—As stated, they came away with the fourth neonatus as one mass. The placental mass was made up of four small placentæ united by membranous tissue; each had its cord, and a characteristic amnio-chorionic membranal sac. Unfortunately I could not persuade the midwife to disgorge the placenta, but the above is what I gathered from the mother and the attendant before the latter's cupidity was aroused.

The puerperium passed without any noticeable feature.

About four weeks' post-partum she attended mass, walking to the church. Upon her return she complained of weakness and dizziness, followed, soon after she retired to bed, with a severe uterine hemorrhage, which was soon stopped. The occasion offered me the coveted opportunity to examine the pelvis and

uterus. The examination yielded a wide, roomy, normal pelvis with a single normal uterus, at that time slightly subinvoluted; normal adnexa. To-day she is about and well with her 180 pounds, actively engaged in selling negatives of her quadruplets. They are very poor.

Observation of the illustration and a comparison of the figures show a perfect and singularly symmetrical development of the neonati. Examination determined no abnormality in their development as malformation, defects, excesses, etc. The three to the left, James, Patrick and Bridget, died the next morning between the hours of 9 and 12 A.M. Catherine, the little one, with dress turned under, was alive when the exposure was made, but died that evening about 78 hours post-partum. They were all viable, and had I seen the case early enough I would have employed the couveuse; unfortunately, when I did arrive three were dead and the fourth moribund.

JAMES. PATRICK. BRIDGET. CATHARINE.

QUADRUPLETS, PARTUS PREMATURUS—EIGHT MONTHS.

Neonatus.	Name.	Weight.	Length.	Cir. O. F.	Lived.
1	James.	2.5 pounds.	15.7 inches.	10.75 inches.	16 hours.
2	Patrick.	3.5 pounds.	16.5 inches.	11.5 inches.	17 hours.
3	Bridget.	2.75 pounds.	16 inches.	10.5 inches.	18 hours.
4	Catherine.	3 pounds.	16.5 inches.	11.5 inches.	78 hours.

Theory.—Many theories have been advanced to explain the origin of multiparous pregnancies, and not a few ingenious ones too, in which it is readily seen that the imagination and fancy play quite a prominent rôle. It would entail too great an expenditure of the reader's time and patience were the attempt made to present even a hasty resumé of the long list of theories extant. It were best to be original, so far as possible, and leave the reader to pursue comparative research as time and inclination may desire.

It is generally admitted that pluriparous pregnancies may obtain where any of the following conceded conditions may be present, namely:

1. That one ovule may contain two germinal spots.
2. That one Graäfian follicle may contain two ovules.
3. That more than one follicle may rupture during the same ovulation.
4. That ovulation, Graäfian follicle rupture, may occur in the presence of pregnancy.
5. That one or both ovaries may cast off a single or a double ovuled follicle at or about the same time.

It is not difficult to conceive how, in the anomalous case, this latter unilateral or bilateral plural rupture of Graäfian follicles may occur.

As a determining factor in the development of pluriparous conditions, not only is the histological structure of the ovary, that is, one follicle containing one ovule or one follicle containing two ovules, of much importance, but also, I believe, and of not less importance, is the state of the sympathetic nervous system, since according as its sensibilities are, so will it reflect the exciting causes to which the organism may be exposed, and so proportionately in dignity will be the effect upon the ovary (and system generally) and its expression. In the usual case there is but a single impregnation, but in the exceptional case, and this is not merely a conception of the imagination, the exciting agent may be so continuous and possess such activity as to call forth on the part of the organism an extraordinary expression—a *delirium eroticum*, as it were—during which, or soon following and induced by it, a maturing follicle or follicles is caused prematurely to rupture in the presence of one that has already ruptured and been impregnated; this second product of ovules is also impregnated; thus superimpregnation will have been occasioned.

Superimpregnation is the impregnation of fecundation of two or more ovules at one time, or about the same time, in contradistinction to *superfetation*, which is the impregnation of a second ovule when the uterus already contains an ovum which has arrived at a considerable degree of development. That superimpregnation occurs in the exceptional case, there is no doubt. The present case of quadruplets is such a case. Its analogy occurs as the usual, the normal in some forms of the lower animals.

That superfetation may and does occur is doubted by many, and especially by Auvard, who argues that

it is only possible (a better word perhaps would be "probable," as all things are possible in nature) in a case of a double uterus or ectopic gestation. From observations made in some of my own biparal cases, where there was no doubt as to the single character of the uterus; where gross inequalities in growth and development in the living as well as the dead would, among other considerations, strongly suggest unequal periods of continuity of existence, and in one case particularly, added to this evidence of the neonati, was the statement of the mother, a very intelligent woman, that she was afraid lest a pluriparous condition obtained as she had experienced that "caught feeling" a second time, a feeling not altogether one of pain and recognized by not a few women. In view of such observations it would not be difficult to "believe in the reality of superfetation," contra Doléris. This belief is further strengthened in the fact that "the same woman giving birth to twins bearing evident traces of being the offspring of fathers of different races" (Playfair), and again in the many illustrations that may be followed in the lower animals. These views are strongly in line with the thought expressed by Darwin, who recognized what he so aptly terms "the similarity existing in all nature."

But to return to our quadruplets. As brought out, heredity played no part as a causative factor, nor did a double uterus. The case is one of superimpregnation, the impregnation of four ovules most probably at the same time, that is, *simultaneous superimpregnation;* or, the impregnation of four ovules within a very short space of time, that is, *immediate successive superimpregnation.*

As to the origin of the four ovules, either—(1) four follicles furnished each one ovule; (2) two follicles furnished each two ovules; (3) one follicle furnished two ovules, and two follicles furnished each one ovule: they may have been expelled from one or both ovaries, most probably from both.

That the quadruplets is a case of superimpregnation and that *four* ovules were impregnated is corroborated by numerous circumstances.

By reference to the photograph and to the accompanying figures, it will be noticed that (*a*) the striking equality and symmetry of countenance, growth and development bespeak a common starting point; (*b*) the fingernails and length, which are of more importance than the weight in determining a case of this kind, are in each indicative of an eight-months, as estimated by the mother, fetus; (*c*) there is a perfect formation of each fetus; there are no deformities of any kind, as malformations, excess or absence of toes, fingers, etc.

By reference to the secundines, it may be noticed that though there was a single mass of placental tissue, it was made up of four separate subplacentæ, united by a membranous union; each subplacentæ had a single cord. The mass of membranes was made up of four separate sacs with charactesistic amniochorionic membranal development. To have four characteristic chorions there must have been four ovules, since the zona pellucida furnishes the external of the three elementary layers forming the mature chorion.

Columbus Memorial Building.

Dear Doctor:—Please direct the attention of your friends to *our* JOURNAL. We will be pleased to send sample copies to any names you may suggest.

INHERITED PECULIARITIES.

BY J. SANDERSON CHRISTISON, M.D.
CHICAGO.

Physical features and moral and mental qualities of parents are so commonly observed in their children that nobody questions their being inherited; that is, they are recognized as "chips of the old blocks," and we are not surprised when the children bear an almost precise resemblance in every essential feature to one or other parent. But when a parent has a peculiarity of a decidedly irregular or abnormal form which is passed to the child, or if it should entirely fail to appear, the question is at once raised as to how that happens; what laws explain the result. We observe disease conditions passed to offspring as well as uncommon features, and which, if not strictly speaking inherited, are somehow due to the circumstances of birth. It is not generally considered by the medical profession that diseases, as we commonly know them, are directly inherited, but that a tendency or special defect, a susceptibility or fitting quality is, and which renders the offspring all the more likely to be influenced by the peculiar circumstances of birth, especially the moral and physical atmospheres created by the parents and which give direction to the final outcome of disease and tending to carry them along the lines eastablished in the parents.

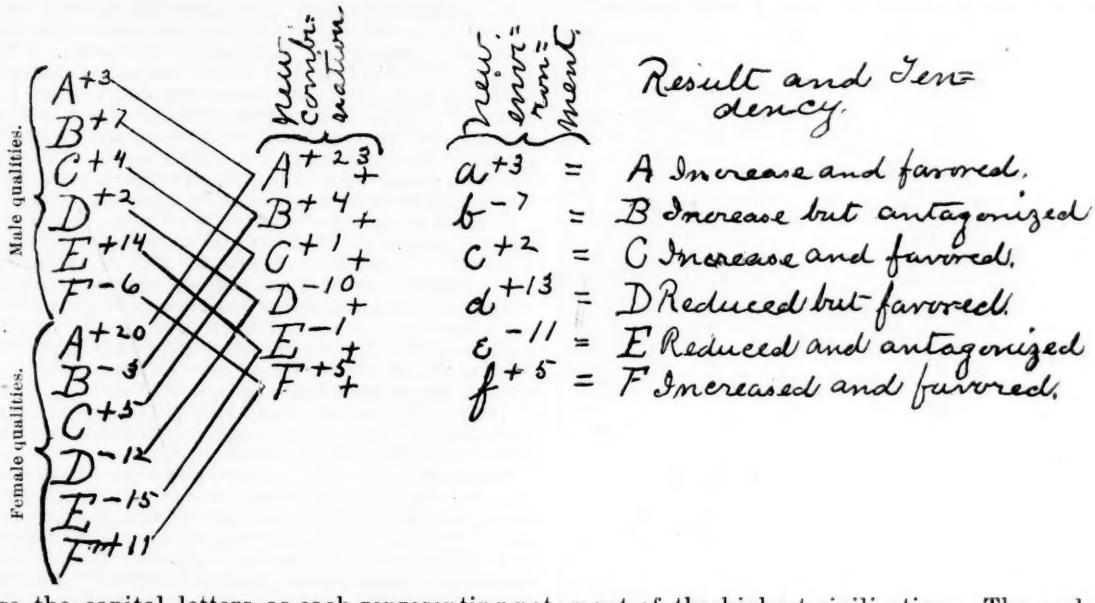
But exactly what the fundamental law of heredity is remains unsettled, and probably will be so for some time to come, both from the lack of sufficient facts and the undecided question as to the limitations of a species. But as like causes operating under like conditions must produce like results, it becomes evident that events, so to speak, striking the lines of growth and conformity at all angles of incidence and varying momenta, which, could they be measured, would express their resultant by a parallelogram of forces. Everything in nature is under law, and all laws are mathematically precise.

But to illustrate, we will represent some of the qualities or characteristics of parents by two groups of capital letters having numerals with + and — signs attached. The letters will stand for a typical degree of a personal quality, or the amount that would balance in a well-proportioned individual, while the numerals will indicate how much above or below a typical degree the qualities are. Thus, by taking a number of the same qualities, talents or peculiarities in both parents and combining them, the result will appear a compromise product in the offspring, as is illustrated in the quality of skin in the combination of negro and white, and which will have to compromise with its surroundings—its new environment. Let the small letters represent particular conditions surrounding the offspring—forces in its environment and indicate by attached numerals whether they are favorable or unfavorable to the new combination and to what extent. The accompanying example will indicate the problem:

It will be seen in this example that neither parent has the same quality in the same degree, and that some qualities prominent in one parent are deficient in the other. But a deficiency or condition below par is an abnormal condition, and if both parents have a deficiency of the same quality the offspring will have an intensified morbid disposition or a malformation. The same rule will apply to qualities

above par in degree, but the process of extension or reduction is limited both by environment and a self-limiting property—a specific quality essential in the specific group, the *number*, *nature* and *order* of properties in any living individual and by virtue of which the laws of affinity and association insure the preservation and continuation of specie character. If this was not so there would be no limitation to divergence from type and no stability to organized forms. But this theory, although one of special creation, does not clash with evolution in nature, but assumes that changes in the progress of nature have paved the way for the birth of a new form of life introduced in the course of cosmic progression and dated by an epoch-making catastrophe. But the germinal essence—the differentiating and character-preserving power, although not produced or created by what we commonly regard as purely physical forces, is yet both made possible and conditioned by them. In other words, a kingdom has been prepared for a king.

But to return to our equation, which, though fragmentary, is representative as far as it goes, we may



suppose the capital letters as each representing not one quality but a group of qualities supporting one characteristic, for owing to the interdependence of the parts of an organism this must be the case. Then, as all qualities are represented by energies in their last analysis, and as energies have both transmutability and selective affinities, it is evident that the variations of environment in the course of development would have such an effect on the order of a group of qualities as would, to some extent, account for the rise or fall of an ancestral characteristic. For example, A+3 representing the eye in the male as being rather better than common, and A+20 representing the eye in the female as being markedly superior to common we might expect the offspring to inherit eyes even superior to those of the mother, and which may be the case, but not always, for some will inherit eyes quite inferior. This can only be explained by the fact that the eye represents many energies, part of which have become transmuted or transposed by selective affinity instituted by the new relations—the change of combination and other circumstances.

Again, let E+14 represent a markedly superior power of reasoning in the male, and E−15 a markedly deficient power of reasoning in the female, we would naturally expect to find the offspring quite ordinary in this particular, but instead of which a superiority may result or even imbecility may appear. But the power of reasoning depends more on the relative fullness of all the other qualities of the individual than on any one portion, so that the energies which give it basis are so numerous and varied that the influences of circumstances will be the least likely to affect this faculty.

Having thus indicated how qualities are transmitted from generation to generation or apparently buried to reappear in a third or fourth generation, we may now notice a few of its practical illustrations If we glance at the various races of man we observe not only distinctions in physical forms but a prevalent or characteristic difference in moral and mental conditions, and we will also observe that those that have mixed most with the world, present the highest degree of civilization. This would indicate that exclusiveness begets evils which preclude the attainment of the highest civilization. The exclusiveness exercised by royalty in requiring its members to marry within a very limited circle of choice, is likely the cause why it has shone so little in the fields of science, art, poetry or invention, and for that matter statesmanship. And this, notwithstanding almost all its members have been in the most favored position to exercise their talents under every advantage.

Exclusiveness has illustrated its effect on the propagation of cretinism by increasing it most in those settlements most isolated from the world, and thus forcing inter-marriage. But wherever these settlements have been opened up by the advances of civilization, cretinism has largely disappeared.

Another marked illustration of the effect of exclusiveness was shown in the old village of Ines in France, and which was isolated by a barren territory and bad roads to such an extent as to compel intermarriage, and it is said that almost all the inhabitants had six fingers on each hand. But after free communication was established with the outside world, this peculiarity soon died out in the subsequent

generations. Thus it is seen, that the principal of "Free Trade" in marriage is a safeguard against the deterioration of family stock, and the only exclusiveness permissible with safety is that in the course of natural selection or in the just exercise of personal liberty.

When we consider the persistence of qualities it is obvious that the racial or historic comes first, then community, family and individual in due order. Many individual peculiarities inherited are very remarkable, as in the case of a slight accidental mutilation in a parent being represented in the same location in the child by a malformation. But mutilations are rarely inherited, although malformations arising in the course of development sometimes are. Defective eyes, slowly arising, are strongly hereditary, and it may be laid down, as a rule, that the closer the defective organ is associated with the brain the more likely is the defect, if it has been slowly acquired, to be transmitted in some form or other to the offspring. One case will suffice to show how a constitutional defect in a parent will display itself in different members of the same family. The mother had been confined to bed for several weeks with a peculiar nervous malady, but which was not correctly diagnosed until a physician from a distance was called, who was also requested to examine other members of the family—aged from 19 to 35 and five of them in all. Their troubles were all chronic and quite different. One had periodical headache; one had epileptic fits; one had spells of pugnacity; one had periodical neuralgia, and one had periodical attacks of gloom. It was evident the main cause of them all was inherited defects, making different manifestations by virtue of a difference in the number, nature and order of experiences in the different individuals, and the conservative forces of nature had not been permitted to operate above the maternal level so as to eliminate the inherited evil.

SOCIETY PROCEEDINGS.

Chicago Pathological Society.

Regular Meeting, Oct. 10, 1895.

WELLER VAN HOOK, M.D., President, in the chair.

DR. ELIZA H. ROOT reported a case of

CELOSOMUS; VARIETY, SCHISTOSOMES. RECOVERY.

Celosomic fetuses are described as "Single monsters, characterized by a more or less complete eventration of the genito-urinary organs and various viscera. The entire contents of the abdominal cavity may be found in a pouch, the walls of which are formed by the cord. There are usually present in addition anomalies of the limbs, and the sex is usually female." (Charpentier.) Charpentier, with Hirst and Pierson, follow Saint-Hilaire in distinguishing cases where the monstrosity is limited to the abdomen and cases where it extends to the thorax, and separates them into varieties:

1. Aspalosomes: where there exists lateral or median eventration at the lower part of the abdomen, the urinary, sexual and intestinal system opening externally by three separate orifices, the situation of which are not normal. The genito-urinary organs are atrophied or absent. Monsters of this variety, born alive, quickly die.

2. Agenosomes: where the organs of generation and urination are absent or rudimentary. The anus is found in front where the external genitals should be. Abdomen and thorax normal.

3. Cyllosoma: where there is a lateral eventration at the inferior portion of the abdomen and absence or lack of development of the pelvic limb of the same side.

4. Schistosomes: where there is lateral or median eventration throughout the entire extent of the abdomen, pelvic limbs absent or ill-developed. The abdominal wall is replaced by a thin membrane through which the visceræ may be seen. This variety is very rare. (Saint-Hilaire and Charpentier.)

From the available literature I find on the subject, I am inclined to think that modifications in degree of this variety are not so very unusual. The case that it is my privilege to report I have placed under this variety as it seems to differ only in degree from the description of *schistosomes*. The remaining two varieties, pleurosomes and kelosomes, involve the inventration of the thoracic visceræ, lateral or median, with absence of the thoracic limb on the cleft side. Cases belonging to schistosomes I find reported under various headings: Exomphalismus—"The whole contents of the abdominal cavity were outside the body." (Simpson of Edinburg.) "The opening in the abdomen is about 1½ inches in diameter, and to right of cord attachment. Through the opening protruded a sac, composed of amnion and peritoneum, and containing the intestines, liver and stomach." (Fritt's and Simpson a similar case.) "The anterior aspect of the abdomen was covered by serous membrane only when "In both groins were a diminutive penis and scrotum." (Brown.)

Ectopia abdominalis is a term under which several cases are reported, the descriptions corresponding with those under schistosomes. "Abdominal cavity was open from sternum to pubes, the liver and intestines exposed and outside the body." (Kennedy.) This author states other complications were present but does not particularize. "There was a large tumor on the right side of the body, extending from the lower margin of the ribs to the crest of the ilium and from the median line in front to the axilliary line, and containing the liver, stomach and intestines." (Dr. N. Montgomery. Jacobus reports a similar case.) "Male born at full term; opening extended from epigastrum to left of iliac fossa, with protrusion of abdominal viscera." (Chas. D. Roe.) "A case born at eight months, umbilical cord 2½ inches in length, protrusion of abdominal viscera complete, both feet clubbed." (Hawkins, Shattock and Herrigoyen report similar cases.) Simple descriptions without any attempt at classification, characterize the reports of several cases, as: "A large tumor of abdomen, covered by a thin transparent membrane." "A tumor or opening extending from ensiform cartilage to within an inch of pubes, visceræ plainly visible." "The child presented a large eliptical opening three inches in length and two and one-half inches wide, through which protrued the whole of the small intestines, the stomach and right lobe of the liver." (Buchanan.)

Matzdorf, of Berlin, reports one case as gastrocele, another as ectopia abdominale, and accounts for the abnormality as failure upon the part of the abdominal wall to unite, through the arrest in the development of the amnion and peritoneum. A case of extrophy of the abdominal viscera in a phocomelus fetus is reported. (John Collins.) Three cases of extrophy abdominalis are reported in which the abdominal cavities were so contracted that reposition of the viscera was impossible. (Stanton, Pichand and Laeconche.) The children died soon after birth. It is not stated if they were born at term or prematurely. Extrophy abdominalis is not confined to single monsters. Wands and Van Henkelen each report extrophy abdominalis in thoraceopagus, and Letitia Westgate a case of xiphopagus, born at the fifth or sixth month of gestation, which had a sac that contained all the abdominal viscera. There was but one umbilical cord and the feet were clubbed. This later case has all the characteristic s of a true schistosomus, except that it is a double monster.

I find but few recoveries recorded: one is a spontaneous recovery. "A case of hernia of the abdominal wall, three inches in diameter, into which when the child cried a considerable portion of the intesties was forced. The child lived and the skin gradually grew over the transparent covering." (J. Tracy Simpson.) Peritoneum in all probability lined the amnion in this case.

"A tumor at the umbilicus, the size of an adult fist, containing omentum and intestines. Parts successfully restored by operation." (Barton.) Probably a case of hernia funiculi umbilici. I find but two recorded cases of recovery. The majority of the reports are silent as to recovery or death taking place. Dorsett operated on a case unsuccessfully.

In reviewing the cases that I find reported, incompleteness greatly mars their value for statistics or instruction in obstetrics. But we do learn that other deformities of the

body, other than the cleaving of the abdominal wall, are usual; that but few recoveries take place and only in cases where the opening is not more than three inches in diameter; that hydramnion is usually present, and delivery liable to be premature. Dr. Simpson, of Edinburgh, in the report of his case calls attention to several peculiar facts: 1, labor premature; 2, altitude of infant, the trunk being curved backward and to the right side, instead of the normal forward curve of the body; 3, malposition, transverse, with presentation of the visceral mass. One observer states that out of fifteen cases of exomphalismos (schistosomes) presentation of the abdomen was met with in thirteen. Time of delivery not mentioned.

In my own case labor was normal, time premature one month, with an uneventful lying-in. The mother, primipara, blonde, aged 24, entered the hospital in labor and was delivered five hours after entering by Dr. Isabella Herb, interne. Position, second presentation, vertex, occiput anterior. The babe weighed seven pounds, fairly well nourished but debilitated. The abdominal wall presented an eliptical opening, three inches in length by two and one-half in width. The cord was situated near the inferior left border of the opening, enclosed by the expanded end of the amnion of the cord. No other deformity of the body appeared. The kidneys and bowels performed their functions normally. The child took the breast well, but did not apparently gain in strength. The temperature rose with the appearance of a ring of inflammation about the border of the cleft. The abdomen became swollen and tympanitic, indicating the probable presence of peritonitis. Beneath the transparent covering patches of lymph were visible. The child was so weak an operation seemed unwise as it could only hasten the inevitable. On the fourth day after birth, about the time for the normal falling of the cord, rupture of the membrane seemed imminent. On the fifth day, when the dressings were removed in Dr. D. W. Graham's surgical clinic in the woman's medical school, the dreaded event occurred. The stomach, liver and intestines were protruding. Dr. Graham brought the edges of the opening together, after replacing the viscera, while the baby was under an anesthetic, as the doctor claimed "to make the baby decent for burial." The infant was returned to the hospital ward still sleeping. On waking it took nourishment and early in the evening passed a loose, green colored stool. Temperature 102.4 degrees F. The day following, morning temperature, 6 A. M., 103.8 degrees F.; M., 105 degrees F.; 6 P. M., 104 degrees F.; after which temperature fell to 101 degrees F. and then normal, varying from day to day; dressings removed on the fourth day after operation; all the sutures suppurating and part of them had pulled out of the tissues, evidently from tension. The edges of the abdominal walls varied from one-half to three-eighths of an inch apart; space filled in with lymph stained with fresh bile; loosened stitches removed, wound cleaned with bichl. hydrarg. sol. 1:2000; wound redressed with gauze and roller bandage which was soon stained through with bile[1]. For several days the bile continued to escape freely and the child seemed in imminent danger of dying from inanition, the temperature, falling to 96 degrees and 97 degrees F. Gradual contraction of the opening continued, and just as a fatal termination seemed imminent a change took place. The bile flow decreased, the points of suppuration began to improve, the child rallied and progressed toward perfect recovery. Twenty-six days after birth and twenty-one after the operation the child was dismissed from the hospital with instructions to return for redressings for supporting the weakened abdomen. The opening was entirely closed, a linear scar one to one and one-half inches long remained. The child grew well and strong and was soon lost sight of.

DISCUSSION.

DR. D. W. GRAHAM—Mr. President, I have just arrived and did not hear all of the report. There is very little to say about it from my standpoint, except that it is one of those cases that surprise us sometimes. The case was brought to me in order that I might demonstrate congenital umbilical hernia to the class. When the clothes were removed the intestines were lying on the surface of the abdomen. The opening was very large. At the time, I regarded the case simply as one of congenital defect in the abdominal wall. The intestines were soiled with fecal matter and urine and gathered up with dirty hands as there was no time for preparation. They were restored within the abdomen with great difficulty and sutures inserted for the purpose, as Dr. Root said in her report, "of giving the child a decent burial." That was the idea at the time, but I was glad to learn at the end of a week or more that the child was recovering.

The opening required six or eight sutures, and before the last two or three were tied the abdominal cavity was flushed out hurriedly with warm sterilized water.

DR. D. D. BISHOP, Attending Dermatologist, and DR. LAWRENCE RYAN, Resident Physician, Cook County Hospital, Chicago, presented a paper entitled—

NOMA AND ALLIED DISEASES OF THE MOUTH. A REPORT OF THREE CASES, WITH PATHOLOGIC EXAMINATION.

The cases we have to report consist of one which was clinically noma, and two that belong more properly to the so-called stomatitis ulcerosa. The patients were brothers, all of whom had recently recovered from measles.

Case 1. Noma.—A. S., male, white, aged 18 months, came to the hospital Feb. 2, 1895. The patient was removed from the Home for the Friendless where, with his brothers he had passed through his late illness. On entrance the child was considerably emaciated. Skin milky-white, warm and dry. Lies quietly on his back, eyes nearly closed. A mucupurulent discharge escapes from the eyes. Pulse very rapid; respirations shallow and accelerated. Of most importance is the local condition, which is as follows: The upper lip, tip and margin of the nose for a distance of one-quarter inch

are covered by a thick, hard, black crust, which extends in a curved direction from the tip of the nose to the angle of the mouth on either side. The lower lip shows no external evidences of disease. The upper and lower left incisors and canine teeth are gone and the molars are quite loose. The alveolar processes on the left side are denuded of gums and periosteum. The sockets of the absent teeth are plainly visible. Much the same condition exists on the right side. The tissues of the floor of the mouth are gangrenous, but the tongue is not involved. The soft tissues of the entire palate may be stripped off in shreds. Upon removing the necrotic tissue more of the superior maxilla became visible, denuded of its periosteum. The inter-maxillary suture was softened so as to allow of movement of the separate bones. The lower jawbone was not involved but there were linear ulcers along the line of junction of the lip and gum. The nasal septum was visible. The necrosis advanced rapidly, so that at the time of death, which occurred forty-four hours after entrance to the hospital, nearly the whole nose, the cheeks on both sides to a point midway between the ears and mouth and a large portion of the chin were involved. The temperature during this time ranged from 102 to 104 degrees F.; pulse 150 to 160, and very weak; the respirations were

[1] I am unable to account for the discharge of bile. There might have been some faulty development of bile ducts, or injury to gall bladder.

from 40 to 60 per minute. No autopsy was permitted. Some of the tissue was excised for histologic examinations, and cultures were prepared. The treatment employed was removal of the necrotic mass, cauterization with strong nitric acid, and antiseptic applications were freely used; liquid diet and strychnin or other stimulants internally.

Case 2. Stomatitis Ulcerosa—F. S., male, white, aged 3 years. Was admitted to the hospital Feb. 25, 1895. General condition is that of a healthy child. The patient had entirely recovered from measles about three weeks previously, but had suffered lately with sore mouth, accompanied by fever and general indisposition. Examination of the mouth shows an ulcer one-half-inch in diameter on the external surface of the upper lip to the left of the median line: small linear ulcers are situated along the margins of the gums and incisor teeth, both superior and inferior; a round ulcer one-half-inch in diameter is seen beneath the tip of the tongue, and a small superficial ulcer on the inner surface of the left cheek, this is three-quarters by one-half-inch in diameter; a similar ulcer in the corresponding situation on the right cheek; the floor of all the ulcers is covered by a grayish necrotic slough; there is slight enlargement of the cervical lymphatic glands. There was some elevation of temperature, rapid pulse and respiration for the succeeding four days, when they became normal and remained so. Local treatment consisted of cauterization, cleanliness and the use of antiseptic washes freely applied. The patient improved rapidly and was discharged eighteen days after entrance entirely well.

Case 3. Stomatitis Ulcerosa—C. S., male, aged 4½ years. Entered the hospital March 2, 1895. Had been treated for measles and considered well four weeks previously. The child seems quite well, except for ulcerations of the gums. Ulcers are to be seen about the left lower molar teeth, and quite marked ulcerations about all the teeth on the left side of upper jaw. The child suffered in no way, except for the local condition. Under treatment similar to that employed with his brother recovery took place in the course of ten or twelve days.

Cancrum oris, as defined by Starr,[2] is a gangrene of the mouth, beginning on the gums or the inner surface of the cheek, spreading with great rapidity and destroying every kind of tissue upon which it develops.

The various authors who have written on the subject agree as to the nature of the disease, but show some difference of opinion as to the starting point of the affection. Thus, Bohn,[6] Echorst,[4] Osler[3] and Ziegler say that noma of the mouth begins either in the mucous membrane of the gums or cheeks. Billroth describes it as a gangrenous nodule beginning in the middle of the cheek, while Moullin says it sometimes begins in the mucous membrane, but more often in the submucous tissue near the orifice of Steno's duct. Fagge[2] believes the gangrenous process begins in the inside of the cheek, always in the submucous tissue, and rarely starts in the gums.

The different authorities differ again as to the relationship existing between ulcerative stomatitis and cancrum oris. Bohn,[6] Keating,[1] Starr[2] and Osler[3] consider them under separate headings, while Eichorst[4] and Ufflemann speak of them as a single affection. Bohn, however, distinctly says that ulcerative stomatitis may be the beginning of a cancrum oris.

Predisposing Causes—Cancrum oris usually occurs in children between the first and second dentition. Several cases have been reported of late, however, in adults.[5] It is more often seen in hospitals and public charities than in private practice. Eichorst speaks of it as occurring frequently in barracks. Both sexes are attacked nearly equally. Thus, Relliet and Barthez[6] report 183 cases, 63 of which were in girls.

As to climate, it is seen most in temperate and cold-temperate regions, especially in the northern seashores. It is not limited to the cooler localities, however, as Galloway[7] speaks of it as of frequent occurrence in Mexico, and cases have been reported from India. It is said to be more common in large cities than in the country. The cold and damp weather of spring and autumn seem to favor its development.

More than one-half the cases follow measles, but cases are reported of association with other infectious diseases, as pertussis, scarlatina, typhoid and typhus fevers. It is often seen in association with malaria, particularly in the northern countries, Komorowski[8] having found the plasmodia in the blood of more than one-half of the twenty-three cases reported by him. It is often a complication of diseases in which cachexia or marked anemia are present. Finally, it is needless to say, that the disease is most frequently seen among patients whose surroundings are unhygienic and whose personal habits are uncleanly.

As to the pathology of cancrum oris, the clinical picture speaks for a progressive inflammation and the histologic investigations seem to warrant this interpretation. Bohn[6] describes the microscopic changes in the gangrenous tissue as consisting of molecular necrosis of the tissue elements, large or small drops of fat crystals, triple phosphates, derivatives from the blood, coloring matter and bacteria. The bones die as far as the periosteum is destroyed; this is usually superficial, but at times the whole thickness of the jaw becomes disorganized. The vessels are unaffected, except in the necrotic tissue itself, where they are thrombosed. The vascular changes are therefore of a secondary nature. The gangrene may remain dry but is usually moist. The visceral changes are inflammation and gangrene of the gastro-intestinal tract, pleuritis, lobular pneumonia and gangrene of the lung, hydrocephalus and thrombosis of the cerebral sinuses.

The pathologic investigations of our cases consisted of cultural examinations, inoculations of animals and histologic sections.

Case 1. Cultures—The cutaneous surface soon after death was burned, incised with a sterilized knife at the border of the gangrenous tissue, and cultures made from below the skin on 5 per cent. glycerin agar-agar. After incubating, the growth developed as a pure culture of an organism showing the following characteristics: 1. In tubes kept at 37 degrees C., fine white deeply-situated colonies about pin-point-sized were seen after two days. Though kept under observation for several days there was no increase in size above that described. 2. White transparent superficial colonies, pin-head-sized, with a denser white pin-point-sized area in the center. Under low power these appear of deep brown color in center and grow paler and thinner toward the edge; the edges are finely dentated; the surface is finely granular and broken by fine lines and furrows radiating from the center.

The growth on slant of agar-agar was white, shining, presenting a translucent surface and extended three-sixteenths of an inch to the side of the line of inoculation. The edges were irregular, being both finely and coarsely dentated. The organisms as seen in the hanging drop were rather short bacilli, non-motile and were frequently seen lying end-to-end. The were often collected into small clumps and but rarely single.

Staining Properties—With gentian violet anilin water these bacilli stain uniformly and intensely. The ends of some are pointed, while others show an expanded (pear-shaped) end; others again are curved. With Loeffler's alkalin solution of methylene blue they stain more intensely in segments, the ends usually more deeply and the central portion faintly. Gram's stain was also successful.

The growth on slants of 5 per cent. glycerin agar-agar showed fine white globules size of a large pin-head and becoming slightly confluent. The organisms reacted to stain in a manner identical with those described from plain agar-agar. On gelatin at room temperature a very slight white growth appeared which caused no liquefaction. Bouillon was rendered cloudy in twenty-four hours at 37 degrees C., while the growth settled to bottom of tube after forty-eight hours. Potato inoculations showed an almost invisible growth. Litmus milk gave no perceptible change in color, no coagulation. There was no gas production with glucose and lactose agar.

Cultures on Loeffler's blood serum mixture, kept at 37 degrees C., gave a white growth in twenty-four hours. Preparations stained with Loeffler's alkalin solution of methylene blue showed bacilli larger than those from the cultures on agar-agar with pointed or rounded ends, often irregular in form and staining irregularly. The individual and staining pecularities were exactly like those of the diphtheria bacillus grown in the same medium.

Inoculations—1. A rabbit, two-thirds grown, was inoculated subcutaneously at the base of ear with 4 c.c. of a two-days' old incubator culture in bouillon. The only noticeable effect was slight swelling for twenty-four hours.

2. A full-grown guinea pig was inoculated subcutaneously in the abdominal wall with 1½ c.c. of a forty-eight-hour old bouillon culture; some local swelling followed and the animal was sick for two or three days. Recovery took place quickly and the animal remained well. As the pig was old and therefore less susceptible to the diphtheria bacillus the degree of virulence, if we are dealing with that organism, was necessarily hard to determine.

Case 2.—Surface cultures from the ulcers showed a bacillus which was in all its morphologic and cultured peculiarities

the same as that described in Case 1. Cultures made on Loeffler's blood-serum mixture corresponded, as did those in Case 1, in every way morphologically and in staining properties to the diphtheria bacillus. Besides this organism the staphylococcus pyogenes aureus was present.

Inoculations—A guinea pig weighing 520 gms. received subcutaneously in the abdominal wall 3 c.c. of a twenty-four hour old incubated bouillon culture. Aside from the production of a local swelling and being sick for a few days no effects were observed.

Case 3.—Inoculations on cultures taken from the surface of the ulcers several days after the local antiseptic treatment had been instituted gave only the staphylococcus pyogenes aurens, and the staphylococcus pyogenes.

Hystologic Sections—A piece of the buccal wall from the case of noma was removed just after death, cut so as to include some of gangrenous and adjacent normal tissue, partially hardened in Möller's fluid, finished in alcohol, coated in colloidin and stained with hematoxyllin and eosin. Examined with the low power the greatest extent of necrosis is seen to be on the mucous surface; here the epithelium appears as a granular mass staining deeply with eosin and showing only a few fragments of nuclei; the submucous connective tissue, muscle and mucous glands are seen as necrotic remains, also diffusely stained with eosin. Here and there, both upon the surface and deeply seated in the necrosed tissue, islands of irregular shape, staining with the hermatoxyllin are seen; these, under high power, appear to be made up of microörganisms. The necrotic zone is succeeded by tissue more nearly normal, and just at the border line between the two zones there is an extensive leucocytic infiltration. As one observes the border of the section away from the point at which there is absolute necrosis it is noticeable that the superficial epithelial cells are entirely gone as deep as the retemucosum, while at a greater distance the loss is less and less until finally, at quite a remote distance the normal layers of cells are preserved. Corresponding with this gradual distruction of the superficial epithelial layers the migration of leucocytes becomes less and less as we pass away from the necrosis. The blood vessels are dilated and often plugged with leucocytes.

Sections stained by Gram's method showed deeply situated in the necrotic zone numerous bacilli quite closely packed together. These organisms are about twice the length of the tubercle bacillus, rather slender, thicker in the middle portion than at the ends. The ends are rounded in some instances, but pointed in others. The bacilli appear like a pure culture and stain best just at the point where the necrotic zone blends off into the inflammatory tissue. Sections stained with Loeffler's methylene blue shows a bacillus in the same situation and morphologically the same. On the surface of the necrotic border some of the same organisms are seen and in addition numerous large bacilli and micrococci.

The observations concerning the essential etiology of noma have been few. Up to quite recent times but little was done toward determining the real cause; the conditions which favor its development alone being described. Bohn[6] in his classical description of the disease describes many bacteria in the sloughing border but assigns no special significance. The authorities to-day are inclined to the belief in a specific cause at work upon a well prepared soil. The frequent occurrence of the disease in public institutions, and the apparent preference for localization upon the mucous membranes of the different openings of the body suggests a microbic origin.

Previous to Lingard's[9] contribution to the subject in 1888, no definite organism having anything like a constant relationship had been described. He found an extensive growth of a thread-like organism 4–8 micromilimeters long just at the line of extension of the necrosed tissue. Cultivations and subsequent inoculations into animals gave rise to appearances precisely similar to those seen in the original disease, and in the heart-muscle necrotic foci and clusters of a thread-like organism with a surrounding inflammatory zone were discovered. The intermuscular fasciæ were also infiltrated with the same bacterial growth. None were found, however, in viscera of the human subject dead from noma. Lingard recovered this organism in all of his five cases. He claims an identity between it and one found in ulcerative stomatitis in calves.

Schimmelbush[10] previously described an organism quite like the one seen by Lingard, found in the same situations, which grew on gelatin. Inoculations in rabbits gave rise to abscesses. In 1890 Grawitz[11] found in sections at the line of living and dead tissue many bacilli which grew out into long threads. The absence of micrococci and thick bacilli, which are usually seen in such necrotic tissue when exposed to the air, made it appear to him that only a single species of organism was at work. No cultures were made. Loeffler, in discussing Grawitz's paper, remarked that the microscopic picture, including the zone of organisms resembled that seen in mouth diphtheria of the calf.

Masterman[12] in 1891 found micrococci in the lymphatics of one of his two cases. Cornil and Babes have found short streptococci and rods, and Ranke found the same streptococcus described by Koch as producing progressive necrosis in field mice. Rabbits, in which tissue was implanted, died.

Bartels[13] in 1892 described in one of his two cases a slender bacillus in the gangrenous tissue and at autopsy the same organisms in the kidneys, lymph-glands, spleen and heart-muscle. These stained with Loeffler's blue and showed spore-formation.

In 1893 Elder[17] found long bacilli running to a point in the tissues; cultures were unsuccessful, and Barnabei[14] found the staphylococcus pyogenes aureus in a case of noma with septico-pyemia. Foote[15] in the same year made bacteriologic examinations from the surface of sloughing tissues in a case of cancrum oris but only micrococci were found. He implanted pieces of the slough into the subcutaneous abdominal tissues of rabbits, but in the abscess formed only the ordinary pyogenic organisms were found. The animals recovered. His sections made from the skin covering the malor bone, showed numerous bacilli measuring 2½ to 3½ micromillimeters, often joined end-to-end and in long strings, situated just at the border of the necrotic zone, next to the inflammatory zone. Cover-glass preparations from the surface of the slough showed micrococci and a few bacilli. The blood in his case was that of an ordinary secondary anemia.

Siegel,[16] in 1894, in an article entitled, "The Identity of Cancrum Oris in Man, and Hoof and Mouth Disease of Cattle," describes a short bacillus, (0.5 to 0.7 microm.). This organism stains deepest at the ends, is immotile, and grows on gelatin without liquefaction. It also grows on potato, blood-serum and bouillon. Gram's stain was unsuccessful. It was pathogenic to doves, cattle and pigs.

Sansom,[18] in 1878, described certain moving bodies in the blood of a girl aged 4¼ years, the subject of noma. These were granules and numerous small refractile bodies, showing rapid locomotion and resembling octahedral crystals. They were most numerous at the height of the temperature and became aggregated into zoogloea masses. Sansom did not find these in all the cases and he is inclined to believe the bodies were non-virulent organisms growing in the blood derived from the gangrenous area. Osler thinks they were blood-plates. Morse[19] has confirmed Sansom's observations. No etiologic significance can very well be attached to these bodies.

Reviewing these reports then, we find the most constant organism and the one to which the most presumable etiologic importance may be attached is a long bacillus growing in threads and end-to-end, deeply situated in the necrotic zone, near the unaffected tissue. In Lingard's five cases these were recovered in the cultures, proved pathogenic to rabbits and again found in the tissues of the dead animals. Schimmelbush also cultivated his on gelatin and produced abscesses in rabbits. Foote's cultures were all unsuccessful but the organism described by him located in the tissues seems quite similar to those of Schimmelbush and Lingard.

Cultivations were also successful in Siegel's cases, but the organism differed from the others in being much shorter. Cultivations were unsuccessful with the other observers. The organism recovered by us in cultures, certainly presents all the characteristics of the diphtheria bacillus except its effect upon guinea pigs, to which it was only slightly virulent. Objections might be made, therefore, to calling it the Löffler bacillus. While there is good reason for such objection, the organism corresponds as closely to all the requirements as do those that have been found in throats of patients either having a pseudo-membrane or in which no clinical evidence of diphtheria were present, which have been described as "diphtheria bacilli with reduced virulency." The absence of the pseudo-membrane should in no wise be held as against the presence of the diphtheria organisms, for have not diphtheria bacilli often been found in situations where the deposit was entirely absent? We therefore feel justified in placing our cases upon record as additions to those such as lacunar tonsillitis, fibrinous rhinitis, otitis media, vulvitis, glossitis, gingivitis, and wounds[20] in which diphtheria bacilli were found, but lacking in clinical appearances.

As to the morphology of the bacilli found in the tissues, one can only say that they resemble the diphtheria organism as generally seen in exudates.

There would seem, therefore, to be no similarity between the organism found in cultures and tissues by us and those described by other observers. For they, on the one hand, found bacilli growing in long threads and end-to-end, while those seen by us were short, straight, curved and pear-shaped. In considering this apparently wide difference one must not forget the wide range of forms taken by the bacillus diphtheriæ as one observes the growths upon different media and under different degrees of temperature. Further, Klein[21] has demonstrated the diphtheria bacillus growing in long threads with granular swellings and knob-like terminals in the tissue of a cow inoculated with human diphtheria bacilli. He also observed all the stages of development from the ordinary forms as usually seen, up to the long thread-like forms. These observations of Klein may be looked upon then, at least, as evidence that the organism in tissues may assume a growth similar to the thread-like filaments found by Lingard and others. These facts will scarcely warrant any conclusions as to the identity of our organism with those of other observers, but might be looked upon as a possible connecting link between those widely different forms.

We can not refrain, in conclusion, from drawing attention to the probable identity of cancrum oris and ulcerative stomatitis. Such a statement seems warranted by the observation of three cases all in the same family, following the same disease, showing distinctly different grades of development from the mild ulceration to profound gangrene, and in two of these the demonstration in cultures of the same organism.

We wish to thank Dr. George H. Weaver for all of the bacteriologic examinations, also Dr. J. W. Walker for photographs of the fatal case, and Dr. E. H. Ochsner for clinical notes on one of the cases of ulcerative stomatitis.

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DISCUSSION.

DR. LUDVIG HEKTOEN—I desire to call attention to the great similarity between some lesions described in connection with noma and what is observed in connection with true diphtheria of the skin, of which there are now several undoubted cases on record, in which the diphtheria bacillus has been demonstrated by means of cultures and animal experiments.

The Doctors' Club.

At the regular monthly meeting of the Doctors' Club of Chicago held at the Chicago Beach Hotel, Oct. 25, 1895, the subject discussed was "the Dispensary Evil."

Dr. Marcus P. Hatfield presided and introduced the guest of the evening, Prof. Geo. A. Coe, Professor of Philosophy in the Northwestern University. He spoke on "The Ethics of the Free Dispensary."

Dr. Fernand Henrotin followed on "The Value of the Dispensary to the Poor." He dwelt upon the necessity of organized effort to furnish medical treatment and advice to the indigent and took the ground that the remedy for the evils of dispensaries lay in each physician taking care of his share of the poor of his neighborhood.

Dr. Edwin H. Dorland spoke on "The Injustice of the Dispensary."

Dr. T. A. Davis followed on "The Value of the Free Dispensary as a Clinical Instructor." He said that the student must get clinical teaching, and, since the Cook County Hospital's wards were closed to students, as also those of many other hospitals, the dispensaries filled a want in the line of education. He estimated, judging from letters received from members of the staff of the West-Side Free Dispensary, that the proportion of persons treated who were able to pay was less than 25 per cent.

Dr. N. H. Cazier spoke on the subject, "The Dispensary's Robbery of the Poor."

Prof. C. R. Henderson, of the University of Chicago, an invited guest, spoke on "The Relations of Dispensaries to Other Charities."

ETHICS OF THE FREE DISPENSARY.

By GEORGE A. CASE, Ph. D., Professor of Philosophy in Northwestern University.

The ethics of the free dispensary involves four particular, if not distinct interests:

1. The interest of the poor.
2. The interest of the physician who gives his services.
3. The interest of the physician whose income may be reduced through competition with the free dispensary.
4. The interest of medical science and education.

Any attempt to adjust so various, complicated, and apparently conflicting interests is certain to fail if it proceeds from the standpoint of any one of them alone. We must, if possible, discover a higher standpoint from which to discern whether there be any unity of interest underneath this diversity. This higher point of view is suggested in the conception of the unity of life with which the doctrine of evolution has made us familiar. Just as, in order to understand any species, we must consider it as a member of a series embracing all forms of life upon our planet, so in morals, we find the meaning of a particular life on the function of a particular class only as we grasp the connection of this one with universal humanity. Reflection upon life very soon convinces us that no man liveth unto himself and no man dyeth unto himself. The man who conceives himself as the sole end of his functions conceives an idea as unmanageable as that of fixed and changeless species. For we are all creatures of the social conditions in which we are born, grow up and functionate. For we are all products of the race, and, whether we will or no, the products of our activity return to the race for its enrichment or its impoverishing. From this it is but a step to the conclusion, though of course the grounds can only be hinted at, that we are truly moral individuals only so far as the life of humanity advances toward the goal of its development. This relation of the individual to the species is brought home to us chiefly in what we call society—in the municipality, State or other civil organization, and in the accepted customs of the people among whom we dwell. It follows, therefore, that *the special function of the physician is to apply his specialized knowledge to the advancement of the civilization of which he forms a part.*

This principle has direct application to the question in hand. In the first place, it determines the proper attitude of physicians toward one another as one, not of personal rivalry or selfish competition, but of friendly cooperation for the attainment of a social good. At the same time, since the physician is an organ of the social life, he himself must be maintained in the condition of greatest efficiency. It would be folly to educate men for the profession of medicine and then starve them; equally so to hinder their professional development at the very period when they are most capable of growing. We need not question the wisdom of letting them win their spurs. As Mr. Emerson says:

> "Cast the bantling on the rocks,
> Suckle him with the she-wolf's teat,
> Wintered with the hawk and fox,
> Power and speed be hands and feet."

Nevertheless this process may be made so painful as to interfere with efficiency, and this, plainly, would be unjustifiable. It is in every way for the interest of the medical profession to maintain the dignity and promote the development of its own members.

In the second place, our general principle sheds light upon the claims of the poor for free medical service. The mediæval idea of charity was that of indiscriminate giving. It is well illustrated in the Legend Beautiful of Longfellow:

"It was now the appointed hour,
When, alike in shine or shower,
Winter's cold or summer's heat,
To the convent portals came
All the blind and halt and lame,
All the beggars of the street,
For their daily dole of food,
Dealt them by the brotherhood."

Whether this description could be applied to a modern free dispensary, I leave you to decide. In any case, however, such charity is of the kind that covers a multitude of sins against society. Sympathy unguided by reason or correct social ideals is as bad as liberty unregulated by law. For each of these tends, in its own way, to create a class which supports itself by preying upon the rest of society.

True charity, without forgetting the value to both parties of direct, sympathetic contact of a man with his neighbor, asks, first of all, what will promote soundness in the social organism as a whole. The relation of social classes is not unlike that of the organs of the body; the heart requires food from the stomach, and the stomach requires blood from the heart; and yet, after all, it is not the particular organ that makes the demand, but rather the organism in its entirety and unity. Similarly, the claims of the poor upon physicians neither originate nor terminate in the poor themselves, but in the need for social soundness and development. While this implies that the physician's personal desires are to be subordinated to the common good, it does not imply that he is to be at the beck and call of persons incapable of appreciating the cost of knowledge and skill. The poor and their philanthropic friends have no more claim on a professional man's time than they have on that of a business man. And yet I fear that any hesitation, at the demand of so-called charity, to scatter indiscriminately abroad the product of years of toil and study, while it would be commended in the merchant as business sense, would be condemned in the physician as selfishness or lack of sympathy. Wise unselfishness requires that charity be so dispensed as not to increase but rather to remove the need for charity. To love the poor is not merely to heal their diseases, but also to find and remove the causes of the same; not merely to give them things, but also to develop them toward physical and moral independence; not merely to keep them alive, but rather to show them how to live. The free treatment of persons able to pay seems to me utterly indefensible. I do not see how it can fail to pauperize them, or at least weaken their moral stamina. If they can not pay the ordinary fee, but can pay something, do not destroy their self-respect by assuming that they are already paupers.

Moreover, the danger in merely giving is doubled when charity is administered in a purely official, impersonal manner. It may be that diseases can be cured by machinery, but surely something more than machinery is necessary to develop the dependent classes into self-respect and self-support. Charity must be so administered as, while relieving present needs, to awaken manly and womanly feelings, and inspire with worthy hopes and ideals. And who has so good opportunity for doing this as the physician? His relation to the patient is intimate and confidential; and this of itself opens the way for mutual sympathy and good will. Then, too, the physician touches the moral life of his patient at its basis or substratum, for we need not hesitate to admit the implication of evolution, that the spiritual life waits for the physical organization, and that physical perfection is a condition of spiritual wholeness. To be complete men we must be perfect animals. There is moral value, then, in obedience to the laws of health. The patient who coöperates with his physician in the effort to attain physical soundness is already on the road to a self-respecting moral life. The personal relation of the physician to his charity patient is therefore of the utmost importance both to the patient himself and to society. Here the earnest practitioner can stimulate the nerve of social progress; but when medical charity becomes merely official, merely professional and technical in the benightedly narrow sense of those terms, then it fails of much of its social effect—it is charity with its most charitable part left out.

This brings me to the interest of medical science and education in the free dispensaries. This is a delicate point, for science is jealous, and rightfully so, of all her prerogatives. I yield to no one in point of loyalty to her and her demand for independence, purity, and the payment of all that knowledge costs. Neither pity for the pains of a few frogs and guinea pigs, or even an occasional man shall hinder her progress. If it is really necessary for her advancement that young practitioners should be deprived of a few patients, let these practitioners make the sacrifice gladly upon the altar of science and philanthropy.

But is it not just possible that the sciences may be in danger of becoming fetishes? That our devotion shall lead to undervaluation of pain, undervaluation of social interests, and an abnormal demand for material for experiment and demonstration? Let us not forget that the sciences were made for man, not man for the sciences. As the philosopher Kant said, we should treat humanity in the person of every man, never as means merely, but always as an end.

Now, so long as patients are human beings and physicians also human, physicians must have a thought for something beyond the bodily mechanism. They must think of the humanity of their patients and of all other persons concerned. You will never succeed in putting the professional part of a physician into one pigeon-hole and the human part into another, or, if you do, you will have brought forth a monster.

Shall medicine mix itself up with morals, then? Not with the disputes of ethical theorists, to be sure; yet how blind should we be if we beheld naught of the social mission of every science, particularly of sciences like medicine, which have direct practical application. The obligation to further the ends of social evolution pursues us whithersoever we go. If we ascend into the heaven of religious contemplation, it is there; if we make our bed in politics, behold it is there; if we take the wings of the morning and fly to the uttermost parts of commerce, even there doth it find us; if we say, Surely the seclusion of the study and the specialization of science shall hide us, even our science becomes a light about us to show us our duty. The science of medicine, let me repeat, is a function of social life, and its end the furtherance of social evolution.

But you will say, You have not yet told us how to reconcile the four clashing interests. No, I have not done this, and shall not attempt to, for my purpose is not to devise ways and means, but only to put into clear light the ethical principles involved. I bear, however, the optimistic conviction that whatever ought to be done can be done, and that this body of representative physicians, if agreed as to the social mission of their science and skill, will be able to execute that mission without sacrificing the real interest of any one.

THE RELATIONS OF DISPENSARIES TO OTHER CHARITIES.

Abstract of remarks of C. R. Henderson, Professor of Socialogy, University of Chicago.

Most delightfully and clearly has my colleague, Prof. Coe, laid down the fundamental principles which bear upon this discussion. And both of us gratefully acknowledge our debt to the physicians whose practical applications of these principles, out of a rich technical knowledge, have been extremely suggestive to us. Personally, I thank you for the opportunity of bringing before this body of men, representatives of a profession whose service is a ministry of goodness, the organizing work of the Civic Federation in the field of relief and prevention. Your interest and sympathy will be an important factor in the success of this measure.

The action of the Civic Federation in sustaining the work of the Bureau of Charities assures its existence, but only a very general coöperation will insure its adequate and permanent triumph. Only very slowly does this conception of democratic fellowship in contrast with aristocratic patronage take root in a vast community. Customs of conduct and habits of mind have a momentum and an inertia which are only slowly modified.

And yet, you gentlemen have for years expressed your conviction based on daily contact with the poor, that a vastly deeper and broader social work must be done if we are to do more than merely mitigate and palliate the awful course of pauperism. In this great service of anticipating the misery of poverty, and employing prophylactic measures, all classes, and not the rich alone, must unite for a long, costly and patient campaign. Our city charities tend to separate us from the poor and widen that chasm between classes which threaten to swallow our civilization.

Justly, and not in vain, we turn to the medical profession for help in this work. We do not compete with any of the numerous relief societies. We are the friend of all beneficent agencies which are honestly and efficiently managed, and in no sense their rival. The city of Chicago, it is asserted by authorities, spends $2,000,000 a year through about 200 agencies, public and private. If any of you were building a house costing $38,000,000, whose annual expenses would be $2,000,000, you would not think 1 or 2 per cent. fee for architect and superintendent would be excessive. When we consider the interests of happiness and misery which are

at stake we shall be all the more anxious to see that public relief does as little harm as possible, and that the vicious stream of causation in social conditions be stopped near the fountains. Only a deep faith in principles and large social forces can lift us out of the alms-giving rut of ages and enable us to believe in measures directed against the very primal sources of misery. We solicit your membership, your support, your counsel, and we shall be grateful for the continuance of your confidence.

THE DISPENSARY'S ROBBING OF THE POOR.

BY M. H. CAZIER, M.D.

Mr. Chairman and Gentlemen: I have been edified by the remarks of the gentlemen who have preceded me in paying respects to the "Free Dispensary" as it is, particularly so by the remarks of Prof. Coe. I want to thank him now, both for myself and for the Club, for his very able presentation of the subject from the ethical standpoint. It must, however, be remembered that it is the province of ethics to point out the ideal for which we should ever strive but can never attain, because of the imperfection of means. True to this principle, therefore, Prof. Coe has admonished us to "aim high" very properly, for in the language of the agrarian philosopher, "if one don't hit the bull's one may make a pretty good shot."

It now remains to present my cause to the jury, and as may have been anticipated it is none other than an indictment for *grand larceny*. I would not have you assume the prerogative of a court of last resort, and that our mind and thinking shall be the dictum by which others *must* be guided. Yet if it shall appear that the poor are being robbed under the guise of charity, and if it shall he brought home to the door of the medical profession that they are fostering a cancer which is preying on the life blood of society, then, gentlemen, we can not escape responsibility. It is therefore highly important that we, now and here, realize our obligations—yours as jurors, my own as an advocate to the end that truth shall prevail, and that we "render unto Cæsar the things that are Cæsar's, and unto God the things that are God's" As medical men we have a knowledge of the facts; each one of us has an abundance of testimony, but it is not in the capacity of physicians that we are to decide public questions—questions which have to do with the welfare of society. As *witnesses* you are *physicians*, as *jurors* you are *men*.

If we mistake our obligation and think and act only as prompted by professional instincts, actuated by the first law of nature, and recognizing no higher obligation, we descend to the level of the city alderman who asks, "What is there in it for me?" And as a profession we must remain hopelessly divided, for those of us connected with dispensary work and aided by its emoluments, will defend it, with all its vileness, while those not so committed will demand its unconditional abatement. It is upon a higher plane, therefore, than thoughts of self aggrandizment can place us, that the demands of the hour require us to act. Gentlemen of this Club, much as I value the distinction of being a *physician*, much more do I esteem the privilege of being a citizen of this city and of this commonwealth of States; much as I respect a *doctor*, a thousand times more do I respect a *man*. It is in the light of the intelligence of the physician shorn of his selfishness and prejudice, and supported by that manhood which is awake to our obligations to society and to the State, that I ask you to look with me at the side of this question which deals with the subjective influence on the recipient.

Let us, therefore, banish from our eyes the glaucoma of sordid greed and look broadly and see if possible the whole truth. Competition for dispensary patients, between the various medical colleges and private enterprises of those not favored with college-teaching positions, is so fierce that advertising in its various guises is resorted to to attract people to the places where "*distinguished physicians*" and "*learned professors*" may be consulted and medicines furnished "without money and without price." *Armies* of people in this city who, if not thus enticed, could have maintained themselves, their self-reliance and self-respect, have taken their first step into mendicancy by the by-road of the *free dispensary*.

"Who steals my purse steals trash; but he who filches from me my 'self-respect' robs me of that which not enriches him, but makes me poor indeed."

Any one who has given study to the subject of scientific charities understands the danger which lurks in the giving of "out-door relief." The danger is to the beneficiary; it tends to pauperize the dependent, and, doing so, the injustice is visited upon society and the State. Thus the individual is robbed, society is damaged and the State is put to expense because of this pernicious, indiscriminate alms-giving, and the *free dispensary* is the most perennial robber of them all! Watch the course of the candidate. A morbid desire for gratuity robs the mind of thoughts of higher purpose. The vial of dispensary tonic creates an appetite for free hams, free flour and free coal. Attendance at the dispensary is certified to the town agent, who is importuned to supply all temporal needs; in this manner the malinger finds encouragement, the dependent is pauperized to the detriment and damage of us all, while the premium stands on indolence and disgrace.

Can the robbery of the poor be made more complete than by changing to a pauper a person capable of self-support? Can anything be more baneful than to induce one to cease to depend upon the strong arm of self-reliance and become a recipient of gratuitous commodities.

"There are more diseases than hysteria that people love to suffer with, and the dispensary-affection is an example. There is no evil that is more ruinous than the awful one of communism. When a man gets that poison in his blood he will be a curse to the world until he is well hanged, thoroughly dead and everlastingly buried. There is no curse so fatal as the curse of desiring to get something for nothing. It is the half-hidden rock upon which the very ship of state, democracy itself, is running headlong. Nothing is serving so subtly and so powerfully to prevent physical and social health, and to keep the world in the thaldom of disease, as medical beggery and medical communism. When a man buys medical service for nothing he pays a high price for it. He cultivates the habit of lazy reliance on medical aid, and grows careless of hygiene. The people think they are fortunate in being treated for nothing, but instead of curing, the "treatment" really fastens the disease perpetually upon the very heart of the body politic."[1]

I desire not to be understood that the dispensary is the only source of pauperism. It is simply the topmost flower of a weed that is sapping the life blood from myriads of useful plants. Shall we welcome a reform?

"There can be no doubt that the instant influence of the necessity of treating crowds of mingled deserving poor and indistinguishable spongers, acts disastrously upon the physician's disposition and manners. The very work wherein gentle kindness is as the sunshine's benediction over the gracious harvest fields of benevolence is transformed into bitterness and harshness. What is more disgusting than arrogance and dictatorialness in a physician? What is more common in hospitals and dispensaries? A dog judges of his master's mood by the manner and the *timbre* of voice, although he understands hardly a word of language proper. Every hospital patient, likewise, forms quick conclusions as to the man's character under whose care he comes, and instead of gratitude for the service rendered the ungentlemanly physician is breeding through the community a condition of mind that bodes no good for medicine. The patient thinks himself sharp to seeure some benefit from grudging surliness, and the overworked, non-paid, half-excusable doctor is glad to get through his job in one or another wretched way. 'He has the European habit and style'—such is the patient's verdict. The patients know well enough when they are looked upon as 'clinical material.'"[2]

In the city of Philadelphia, in this respect the worst cursed city on the continent, the Bureau of Charities offered its assistance to see that impostors should be excluded from the dispensaries. The physicians in charge declined, saying, "We want the impostor for his influence, we want the doors left wide open, let everybody come." In this we have an exhibition of the willingness of men, and must I say physicians, to compromise principle, to compromise the good of society and the State, not to say the profession, to their own individual selfish aims. I therefore appeal to you as citizens of this, the *greatest city* of the *greatest nation*, to use the intelligence of the physician to guide you in your duty as men to reform this evil which menaces society. Not solely because it robs the doctor of paying patients, but because it robs the individual—the recipient—of his self-reliance, of his self-respect, places barriers between him and honor and turns his face toward the dust!

This side of the free dispensary evil, this pauperizing of dependents, this robbing the poor of their right and title to respectability, appeals to you; it appeals to every medical man in Chicago, and if we who are connected with the evil, and likewise those who are not, shall choose to lie supinely upon our backs and wait, we will find that the

1 "Hospitalism," by A. M. Gould, M.D., Phil.
2 "Hospitalism," A. M. Gould, M.D., Phil.

awakened intelligence of society will visit upon us the sad necessity of becoming followers in a reform we should have led. The study of scientific charities is fast carrying the seed of truth where it will bear most fruit, and if we would regain the respect and social standing accorded our fathers we must awaken to the demands of the hour. Stated plainly, the evils which require correction are as follows:

1. Prevent the physician or surgeon, who does dispensary work, from using his office as a "cats-paw to rake the chestnuts from the fire."

2. Prevent every one from receiving treatment at dispensaries except those actually too poor to provide for themselves.

This will decrease attendance 50 per cent. I say 50 per cent. on authority[3] of all those who have made investigations. I must question the reliability of the estimate made by Dr. Davis. This should also stop the use of dispensary patients as decoys for private waiting-rooms and make dispensary work honorable.

To this end it is necessary that there shall be selected a board of *censors* with *sense*, and who shall become *incensed* if abuses continued.

THE DISPENSARY EVIL—INJUSTICE OF THE DISPENSARY.

By E. H. Dorland, M.D., Surgeon to Lakeside Hospital, Chicago.

Our subject defines itself. It is not for us to discuss a doubtful proposition, but the dispensary evil. It is then assumed, believed and recognized, that the free dispensary is an evil, and that it requires no argument, no array of facts in this presence, to convince our hearers that the free dispensary is an evil. It may be further assumed then that the scope of the discussion is to be confined to the exposition of the evil, and to the means to correct that evil. While the profession is, in the main, responsible for this dispensary evil, the individuals, the organizations, churches or what not, that furnish the money to equip and maintain the free dispensary, make a great mistake and do the medical profession a great injustice. There are so many ways of spending money for the benefit of the whole community without wronging any part of it, that with slight exception, the man who endows a free dispensary does vastly more harm than good to the community, and directly wrongs the medical profession. From a humanitarian standpoint, one heavily endowed and well-equipped laboratory for the promotion of sanitary science would do more for Chicago than all the free dispensaries in the city. The *motive* of the man of money, or the charity ball, or the high-toned gambling scheme of the church social, may be good, but their efforts, and the result of their efforts are bad. The well-meaning, but misguided minister who urges, even implores his church on "Dispensary Sunday," to contribute a goodly sum for the free dispensary, is enjoying the delusion that he is working for a noble charity; and a side-factor is the dispensary doctor, who is working the church for advertising purposes, and who is specially active and conspicuously officious on these occasions. Many of us have observed a man with a Solomon-Levi appearance, a prominent bidder at a church fair free dispensary push, pay $20 for a thing worth 20 cents. An allusion to these "tricks of the trade" is sufficient; it will bring to mind the long and disgusting list of practices under the guise of charity that it is hoped that enlightened charity will banish from good society in the near future. There are degrees of this evil; there are comparatives and superlatives of this evil. There are two special divisions of the injustice of the free dispensary to medical men: First, the direct injustice in that it takes a very considerable number of patients from their offices that could and would pay something for treatment; second, that far greater and more damaging injustice, that of prostituting a profession consisting of a body of learned men, men constituting preëminently the learned profession, to a standing below that of a trade, or even a day laborer, in that their services can be had for nothing. The free dispensary educates people to expect something for nothing, than which no greater evil to a community can be done. This phase of the subject should be continuously emphasized, as the people can see and appreciate this side of the subject more readily and clearly than any other. One of the most humiliating spectacles in the whole round of this dispensary evil, and one that does the medical profession the greatest wrong and injustice, is that of the man who perpetrates the farce of diagnosing and prescribing for ten, twenty-five or fifty cases in an hour. If it was for legitimate teaching for the boys on the benches, *two* cases properly handled, properly and correctly diagnosed and skillfully prescribed for, would serve the purpose infinitely better. Another form is exhibited in the voluminous writings of the dispensary doctor. The free dispensary literature, and reports of cases treated at free dispensaries, are wholly untrustworthy, and are wholly worthless to the student of medicine. I believe I voice the consensus of opinion of the medical gentlemen of my acquaintance when I say that I believe that there has never been such a volume of stuff in the shape of reprints and clinical reports as at the present time flood the offices of the profession. I believe further that I state a fact in saying that from 60 to 90 per cent. of this "stuff" is not worth the paper it is printed on to the profession, and that the light of it is most observable when used as kindling with which to light the evening fire on the grate, by the warmth of which to read books written after an exhaustive study of the subject in hand, and in which scientific facts are stated and the doctor left to draw his own conclusions. The obvious injustice to the profession exhibited in the rough, gruff, unseemly and boorish manners of the dispensary doctor is another great wrong and misrepresentation of the medical profession. Practice in the dispensary unfits a man for practice among refined people. Of these people that crowd into the free dispensary the doctor knows nothing; knows nothing of their habits, manner of living, thinking, speaking, working, eating, drinking, or their environment in any way. The whole free dispensary tends to teach the people to hold us in contempt. The spectacle of doing business *free* exists in no other walk of life, and it has always been true and is true to-day, that the people do not appreciate that which costs them nothing. The teaching factor in the free dispensary is as near worthless as anything can be. It is a very rare thing that a physician who enjoys an experience in a refined private practice attends a free clinic. If there is nothing there desirable for him to learn, can that instruction be of any real value to the medical students? If the dispensary doctor is there for his own instruction it would seem that it takes him a long time to "learn his trade," whatever he treats, whether it be eyes, or throats, or wombs or feet.

The impression is kept very prominently before the people that they will be examined and treated by the great professor at the free dispensary, and it seems that some of our medical men favor and prefer the title of "Professor" to that of "Doctor." This impression, this figure-head of the "Great Professor" is, in the main, a gigantic fraud practiced upon the people. As in politics, so in dispensary professorships, a man of money, or influence, or ability holds the office, but some one else does the work. We can teach the people that the free dispensary is for paupers; that the service at a free dispensary is not at all like that of a private office; that the acting free-dispensary doctor is not the best doctor; that he is a man of little or no experience and is there to experiment. Let the dispensary doctor, if he is sincere, do what he can, and he can do a great deal more than he does do, to weed out and kick out the dispensary parasites. In this corn and hog city of ours we have a large class of people of very little refinement and less taste, that will accept the free-dispensary service and is wholly unworthy of it in every particular. The free-dispensary doctor will perscribe for this class of people and belittle and humiliate himself, and disgrace the profession in doing so. Charity is greatly exaggerated and overdone in Chicago, but no charity is so terribly abused as the free dispensary. A careful estimate will show that there is no legitimate need for more than one-fourth of the free dispensaries that now exist, unless it is to advertise the doctor that is giving his life for the people. It is often a most pathetic sight to observe the efforts of "Mrs." Free-Dispensary Doctor, or her mother-in-law, as solicitor of funds to maintain the free dispensary. It is very apparent, too apparent in the main, that the free clinic is an advertising institution. I venture the statement that the better you know the free dispensary, its professors and its methods, the less you will admire the free dispensary, its professors and its methods. As ever, so now, bigotry is universally an evidence of ignorance. Let us not deceive ourselves into the belief that unqualified statements and bold assertion are indications of erudition. Let us withhold our approval and discontinue all patronage to the men that are willing to lend themselves to the perpetuation of this gigantic abuse and injustice. There are plenty of better doctors than those that are mere teachers. The profession is, to a degree, responsible for the bigotry, too prominently and painfully observable in the free-clinic professor. The average free-dis-

[3] Warner's American Charities, chapter on "The Destitute Sick." Investigations in New York of several thousand dispensary habitués revealed that 25 per cent. were found to be abundantly able to provide for themselves; another 25 per cent. had given the wrong address to conceal themselves. This left 50 per cent. who were rightfully entitled to participate, and who were being robbed by the impostors.

pensary promoter is just about the size mentally to be spoiled by the admiration and applause of first-year medical students. We can do much to correct this abuse by raising the matriculation grade for all medical students. Let a bachelor's degree be required to enter any medical college. When this is done our young men will attend the full four or six years' course at the universities of medicine instead of stock company medical colleges. University professors do not need to resort to any such methods. The number of patients that are treated free has more than doubled per 1000 in the last ten years. Are the people less able to pay for medical service than they were ten years ago? There is nothing within the confines of medical practice that has wrought such harm and injustice to the profession of medicine as the lesson the people have so readily and all too well learned —that they can get medical and surgical treatment for nothing.

BOOK NOTICES.

Medical and Surgical Report of the Children's Hospital, 1869-1894. Edited by T. M. ROTCH, M.D., and HERBERT L. BURRELL, M.D. Boston: Published by the Board of Managers. 1895. 8vo, cl.

This sumptuous volume with its elegant paper, beautiful illustrations and well-written text, tells the story of the founding, the development, and, we were about to say, the perfection of the hospital. The contents of the volume are as follows:

Division i—(*administrative*). 1. The History of the Hospital, by Francis H. Brown, M.D., who has been Secretary of the organization from the beginning in 1869. 2. The Executive Management of the Hospital, by the lady Superintendent, Sister Caroline. 3. The Convalescent Home. 4. The Outdoor Relief Department.

In Division ii (*medical*)—we have a series of interesting short essays: 1. Typhoid Fever, by F. Gordon Morrill, M.D. 2. Value of Milk Laboratories for Hospitals, by T. M. Rotch, M.D. 3. Relation of Aural Service to the Needs of a General Hospital for Children, by Clarence J. Blake, M.D. 4. Malaria in Children, by E. M. Buckingham, M.D. 5. An Epidemic of Scarlet Fever, by Thos. F. Sherman, M.D. 6. Etiology of Chorea, by Chas. W. Townsend, M.D. 7. An Epidemic of Diphtheria Apparently Stopped by Use of Antitoxin, by F. Gordon Morrill, M.D.

Division iii (*surgical*)—is divided in three parts, the first being a description of the work done in the surgical wards of the hospital, in the surgical out-patient department, and in the surgical appliance shop. The second part gives a description of the standard routine of procedure in the classes of cases treated at the hospital. This includes description of the arrangements for the operating room, sterilization and dressings, gymnasium, form of records and blanks, etc. Third part contains a series of original papers by E. H. Bradford, M.D., R. W. Lovett, M.D., Herbert L. Burrell, M.D., W. N. Bullard, M.D., H. W. Cushing, M.D., and E. G. Brackett, M.D.

Few hospital reports are of more practical value, and as an exponent of *fin de siecle* medicine and surgery its authors will take a front rank.

A System of Surgery.—By American authors. Edited by FREDERIC S. DENNIS, M.D., Professor of the Principles and Practice of Surgery, Bellevue Hospital Medical College, New York; President of the American Surgical Association, etc., assisted by JOHN S. BILLINGS, M.D., LL.D., D.C.L., Deputy Surgeon-General U. S. A. To be completed in 4 im. 8vo vols., 900 pp. each, with index. Profusely illustrated with figures in colors and black. Vol. III, 908, pp., 207 engravings and 10 colored plates. Price per vol., $6 cloth; $7 leather; $8.50 half Mococco, gilt back and top. For sale by subscription. Philadelphia: Lea Brothers & Co.

This volume has been continued on the same plane of excellence as its predecessors. The plan of the work makes this volume include among its contributors the names of several well-known specialists outside the ranks of the surgeons. The contributors to this volume include Drs. D. Bryson Delevan, Henry H. Mudd, Charles B. Porter, Willard Parker, Fredrick S. Dennis, George E. de Schweinitz, Henry D. Noyes, John E. Weeks, Gorham Bacon, Louis McLane Tiffany, William A. Hardaway, J. William White and Robert W. Taylor.

Dr. White gives a great deal of space to the subject of castration in certain cases of prostatic hypertrophy, and Dr. Dennis presents a conservative view of pulmonary surgery. Dr. Parker an excellent resumé of bronchial cysts, and Dr. Taylor gives some very recent methods of bubo treatment, and we might easily say some very late views on the general subject of syphilis. The volume as a whole is fairly representative of the existing state of the topics under consideration. A book of this kind, as a rule, does not assume to promulgate original investigations, but only to record the science of the day as it is understood. Whether the more ephemeral topics and methods shall be included largely depend on the judgment and tact of the editor. In all such matters, Dr. Dennis has so far displayed a taste and judgment creditable alike to his wise diseretion and to his common sense. We shall look with renewed interest for the appearance of the concluding volume.

Diphtheria and its Associates.—By LENNOX BROWNE, F.R.C.S., editor. Illustrated by the author. London: Baillière, Tindall & Cox. Philadelphia: J. B. Lippincott & Co. 1895. 8vo, cl.

This monograph is one that will naturally attract much attention, not only on account of the deep interest attaching to the subject itself, but because of the high standing of the author. There are thirteen chapters in the book, namely: i. History of Diphtheria. ii, iii and iv. Etiology. v. Pathology. vi. Bacteriologic Diagnosis of Diphtheria and its Associates. vii. Clinical Diagnosis of Diphtheria and its Associates. viii. Record of Illustrative Cases, etc. ix. Elements of Prognosis in Diphtheria. x. Treatment of Diphtheria and its Associates. xi. Laryngo-tracheal Diphtheria-Croup. xii. Hygiene and Prophylaxis. xiii. Formulæ for Remedies in Diphtheria.

There is an appendix in which the serum treatment of diphtheria is discussed in all its bearings. This section is an exhaustive summary of the existing knowledge of the subject. The accidents of the serum treatment are not extenuated, but on the contrary, as will be seen by reference to another column, its use is distinctly condemned. But leaving aside the question of serum-therapy, the book will stand as an able and authoritative exposition of the subject of diphtheria.

Electro-Therapeutical Practice.—A ready reference guide for physicians in the use of electricity. By CHAS. S. NEISWANGER, PH.G. Flexible covers, pp. 30. Chicago: 1895.

This book is said in its preface to teach "plain facts and simple rules" for practitioners. The method adopted by the author is, to say the least, peculiar. The common list of diseases is presented, and under each name the manner of applying electrical treatment. There is no half-way or faint-hearted system recommended in this book, for this pharmacy graduate has no pathologic or diagnostic doubts, but like the "plain, blunt man" that he is, he goes right on to apply electricity without let or hindrance to all kinds of diseases and conditions, from an abortion to a case of exophthalmic goitre. There are some good points of technique, but as a whole the book belongs to a class that had better not have been written.

Outline of Materia Medica and Pharmacology.—A text-book for students. By H. M. BRACKEN, M.D. Philadelphia: P. Blackiston, Son & Co. 1895. 8vo, cl. Price, $2.75.

The author informs us that it is intended the book "shall serve the purpose of a text-book; for use in the study of materia medica; to facilitate note-taking in the lecture room, and to aid in the laboratory study of drugs." The metric system has been given the preference throughout. The book has been carefully compiled, and in our judgment is destined to become a very popular text-book. Although particularly intended for students, the practitioner will find it instructive, especially with respect to the newer remedies, and as a convenient work of reference.

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SATURDAY, DECEMBER 14, 1895.

SERUM-THERAPY IN DIPHTHERIA.

Just as we were growing comfortably settled in the conviction that if there was anything in the doctrine of serum-therapy, it was surely in cases of diphtheria that its strongest statistics were to be found, along comes one of the ablest Laryngologists of Great Britain, MR. LENNOX BROWNE, and in an able discussion of the subject,[1] reviews the question adversely. After stating as a result of his experience that with serum-therapy "a greater number of children have been found liable to attacks of cyanosis and fainting, with a correspondingly increased demand for nervines and stimulants," and that "complete recovery is for the most part found to be greatly delayed, and an unexpected fatal result at a late period is more frequent," he continues: "When drawing attention at a meeting of the Clinical Society last December to an increased liability to the most grave complications of diphtheria, viz., anuria, nephritis and cardiac failure under the use of serum, we took occasion to express a hope that further experience might prove that the disadvantages of serum would be more than outweighed by its benefits."

Having carefully compared the results of 1,000 cases in which there were 284 deaths, and divided them into hundreds, he states that "the actual mortality was the same, namely, 27. It was 27.10 on the whole number—1163—treated during the year 1894 at the hospital whence our comparisons were made."

After a lengthy weighing of the result of his observations he thus concludes:

"The foregoing observations as to the effects of serum treatment will, we trust, have made it clear that the injection of antitoxic serum into a patient attacked by diphtheria is not altogether free from an added danger, notwithstanding that the amount of active principle administered can be measured only by millionths; and we have seen that the power of this serum to do good and *per contra* its capacity for inflicting injury is in proportion to the duration of the disease—in other words, to the degree of the toxæmia.

"As a corollary, we might be able to pronounce that the power of antitoxic serum to act as a prophylactic against a possible attack of diphtheria is in proportion to the rigor and healthy blood condition of the individual in whom it is employed; but the very minute dose administered for this purpose is evidently capable of being soon broken up by cellular action in the healthy.

"We can, therefore, understand the general admission as to the evanescent character of the immunity so obtained. Moreover, reports of cases are not wanting in which noxious and even fatal results have followed the use of serum when employed as a prophylactic.

"On all these grounds, therefore, we do not feel justified in recommending serum for this purpose. More real methods of preventing the spread of diphtheria are to be found in improved sanitation, in prophylactic surgical treatment already detailed, and in efficient isolation and disinfection."

It is pointed out that in many of the continental hospitals where the results of serum-therapy are asserted to show such remarkable diminution of mortality, that the former mortality statistics in the same hospitals were greatly in excess of those obtained by strict adherences to the classical treatment so ably carried out in some of the British hospitals.

The JOURNAL in thus giving its readers the conclusions of one of the ablest specialists of London, wishes once more to emphasize the necessity of making haste slowly in accepting every continental fad that is forced upon us. Let the memory of the BERGERON treatment, and of the tuberculin be a sufficient warning, without making ourselves ridiculous by undue haste. There are so many opportunities for having new theories tested on a large scale in the world's great hospitals, that the general practitioner may well exercise patience while the great problem is being worked out. In the matter of diphtheria let us remember that wherever the disease is *immediately treated* by appropriate local remedies, recovery is the rule. Frequent inspection of the children's throats, and thorough cleansing of the nasal passages, will prevent the disease in many cases. Prevention is not only better than cure, but the dangers of hitherto unknown horse toxines, may be avoided.

Larger and more extended experiments, which we would by no means discountenance, may indeed demonstrate the truth of the claims brought forth by those anxious to herald a new discovery, but in the meantime the general practitioner can afford to adopt more stringent precautionary measures, more active local methods, and WAIT!

[1] Diphtheria and its Associates, 1895.

THE NEEDS OF THE MEDICAL DEPARTMENT OF THE NAVY.

The annual showing of the Surgeon-General of the Navy exhibits the medical corps of that service at a still lower level in its *personnel* than a year ago. One by one, its men of experience are lopped off from the top by the statutory limitation of age, though in the full vigor of mind and body, while a rare addition to its foot at long intervals, of an occasional recruit fails to arrest its steady ebb. Fourteen vacancies in a corps which only consists of 170 members, when its ranks are filled, at a time when employment is eagerly sought by young men in every vocation, are significant of something wrong in a body which was once recognized as the *corps d' élite* of the Naval Service.

The examinations for admission are no more severe than formerly, and are probably not so exacting as in the days of the old Philadelphia Board, when it was considered high honor to pass its ordeal and when men were examined in anticipation of vacancies, which sometimes did not occur within the year, compelling the successful candidate, for whom there was no place, to submit again to a trial a year later Then faculties urged the brightest of their graduates to go before the Naval Medical Board, and rival colleges took pride in the number of their men who passed. To-day there is not a school or teacher in the whole land that does not dissuade their young men from entering the Naval Service. The reason is plain enough—the unsatisfactory position of the medical officer of the Navy, and the relative inferiority of his status and pay to those of his professional brethren in the Army. The profession properly resents the degradation of the bearers of its diplomas to the level of school boys from the Naval Academy, and the studied contumacious treatment to which they are subjected throughout their whole career by the tyrants of the quarter-deck.

The leading national medical organizations have appointed committees during the past year to urge upon the next Congress, now about to convene, remedial legislation looking to the elevation of the status, pay and emoluments of the Naval medical officer to those of the medical officer of the Army; though the Army itself has cause for complaint in the matter of its insufficient numbers, but its medical officers are officers in fact, as well as in name, and they are recognized and treated as such, without any of the wretched evasions and discriminations which prevail in the Navy. An Army medical officer *commands* his hospital; a naval medical officer is only "in charge" of a naval hospital, though in it there may be two or three hundred officers, employes and patients, enlisted men, sailors and marines, who are subject to his orders, who are punished by him for infractions of discipline, and who in all things bear the same relation to him that the officers and crew of a vessel or those at a shore station do to the line officer at their head; yet though the latter be only an ensign or even a cadet, and his vessel a tug-boat or a mud scow, he *commands* the half-dozen men who constitute its complement. In the Army the Surgeon-General himself orders boards of medical officers to do the duty required of them and to report to him; the Surgeon-General of the Navy can only request that the line commandant of a station "*may be pleased* to order" a board of medical officers to do precisely the same duty, and the commandant orders that the board shall report its findings *to him* in triplicate, though it be concerning a strictly professional matter, of which he is entirely ignorant and therefore incompetent to judge and approve. When associated boards of Army and Navy medical officers are engaged upon the same investigation, the ridiculous and humiliating difference is bitterly felt by the Naval medical officers. In the Army, medical officers sit as members of general courts-martial for the trial of line as well as staff officers, and when senior in rank, act as the presiding officer; while in the Navy, medical officers are only permitted to be members of such courts when one of their own corps is under trial, and then only in a helpless minority

During one of the many futile attempts to obtain from the line of the Navy the equivalent status for medical officers which is unhesitatingly accorded in the Army, one of them was asked to explain his idea of the relation of the senior medical officer of a naval hospital to his subordinates, and he replied: "Oh! he does not command them. He only *exercises disciplinary control* over them;" and this in face of the fact that the medical officer's commission as an officer of the Navy is framed in identical terms with that of the line officer, requiring obedience to his orders from all officers, seamen and marines under his command.

What wonder then, that the Navy is divided into two irreconcilable hostile camps? It is idle to expect common sense or justice from men who advance such puerile quibbles as argument, and it only remains for Congress to take the settlement of the naval *personnel* in its own hands and by adopting the Army model, forever end the unhappy contentions which disgrace the naval service, and for which there is no precedent in any foreign service. Especially do we urge this necessity upon the ten or twelve medical men who are annually returned as Representatives of the people, and who can, for the good name of the profession to which they belong, put a stop to the indignities their colleagues in the Navy have so long suffered.

The regular edition of the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION this week, is the largest ever issued.

MODIFICATION OF THE "RED CROSS OF GENEVA" AS THE PROPOSED SYMBOL OF MEDICINE.

Some of our friends find time to work out the symbolism and esthetics of their profession. When they do this cunningly and tastefully they well merit our thanks. Accordingly, the editor of the *Boston Medical and Surgical Journal*, in his issue for Nov. 14, has our gratitude, since he appears to have hit upon a proposition that may meet with a very general approval. His advice, in brief, is that the Geneva Cross, somewhat modified, be adopted as the emblem of medicine, whether in art, literature or organized undertakings.

It appears that the question of proper insignia has been under consideration by officers of the medical department of the Army. When their conclusion shall have been reached such selected insignia will probably also be accepted by the militia of the different States. Possibly the medical department of the Navy will adopt the cross, with a suitable distinctive modification.

The editor of that journal says: "Recently published remarks concerning a distinguishing device for the medical department of the Army bring to mind the whole subject of medical symbolism, in both its civil and military application. After extended research among the histories and other records of ancient and modern times, together with observation of customs yet extant among socio-religious communities, a form has been found which appears to answer the requirements necessary to appropriate insignia by which to characterize medicine. It is well known, to those informed in such matters, that the caduceous—the emblematic staff and serpents—also serpents in different postures and variously associated with other objects, and the cross in its many forms and combinations, are outgrowths of one and the same root. Numerous other things, more or less used as symbols of medicine, such as the oak, palm, gallus, *et alia*, have the same origin. Moreover, the Geneva Cross, of the Red Cross Society, is now recognized the world over in its best practical application.

"We have here, therefore, a proper symbol of the healing art, fitting in its origin, significance and actual use by civilized humanity. The ordinary design might be improved upon by lengthening, very slightly, the arms of the cross, so that the square forming the center would be a trifle smaller than the corresponding part of the actual Geneva Cross. This variation is recommended for the reason that in the common form of the red cross, the great mass of color in and about the center causes an apparent lack of proportion, by making the middle square look larger than it really is. This optical illusion would be corrected by this suggested modification. For use on military uniforms the cross might be of some handsome shade of red, made of durable material set in gold. If the red cross is used as a medical emblem, it should be recognized that it is of international significance, and a red cross with gold about the edges is ornate and might serve for a collar device to designate a medical officer."

The red cross is an emblem of neutrality, and should be easily distinguishable at a distance, and thus protect those who by the treaty of Geneva are classed as non-combatants, though it is probable that, with the present long range firearms, non-combatants, whether medical officers or newspaper correspondents, will have to take the common chances. There is one other suggestion that may be made in the carrying out of the hints given in the foregoing paragraphs; namely, the central square made by the four outlying arms may be left uncovered, so as to receive a lettering or emblem suitable to the respective subdivision of the army, navy or militia. This central square may be graded by the use of gold, silver or other materials, for higher and lower ranks, or other distinctive markings or colors may be developed according to the variant occasions for differentiation.

THE EVILS OF A LIMITED TENURE OF OFFICE OF HEALTH OFFICER.

By reason of a strong paper before the recent meeting of the British Medical Association, read by Dr. Whitelegge, on the above subject, a concerted movement is being made in England to secure a fixity of tenure of Medical Officers of Health in a greater degree than already exists. A far larger proportion of English sanitary officers has permanency of tenure than is the case in this country, but altogether too large a number feel the pinch of uncertainty and its accompanying handicaps. The editor of the *Sanitary Record* comes trenchantly to the front on behalf of these slighted officials, whose very livelihood may be in jeopardy from the caprice or parsimony of the respective local boards of more or less ignorant and politically-inclined laymen. Politics and health administration mix with as little facility as do oil and water—when they do mix, to any good purpose, it is by dint of prolonged *agitation*. The agitation in this particular instance has been begun, and will without doubt be continued to the end. In this country, no such beginning has been made and can scarcely be hoped for until we have, at least, as a starting-point for the building up of a consistent and uniform code of sanitary regulations, a National Department of Health.

The remarks of the editor of the *Sanitary Record* on fixity of tenure for medical men in sanitary life are, in part, as follows:

That it is in the highest degree desirable that competent officers should be so far independent as to be able to act in the way they deem best for the public good without the fear of dismissal or of reduction of salary, should they, in the performance of their plain duty, give offense to a member of the Board, or to some person of local influence, no one can seriously doubt, but the question is by no means so simple as

that of securing the like protection for the Sanitary Inspectors; for the duties of these latter officials, and the areas over which they exercise them, are not likely to undergo any very great change. But the medical branch of the sanitary service is at present in a state of chaos, presenting a serious obstacle to progress, which it would be folly to perpetuate. Though some few Medical Officers of Health have succeeded in combining the efficient performance of their official duties with private medical practice, their cases or their circumstances have been exceptional. The ordinary practitioner finds himself hampered at every step; his attention is divided, his time is not his own; the calls and interruptions of practice render continuous investigations wellnigh impossible, and every difficulty felt by the Medical Officers of Health at the mercy of a Board is felt a hundredfold more painfully by a man who can not afford to give umbrage to his patients, to say nothing of possible friction with other medical practitioners. Twenty years ago such appointments were a practical necessity, but it was, doubtless, in view of their gradual supersession in the not distant future by others of experts to larger areas, that these were made in the first instance for periods not to exceed five years. Some of these men have developed into experts, a new generation of specialists has arisen, and a number of whole-time appointments and of combined districts have been created without our being much nearer the realization of the ideal, since the appointments originally intended to be provisional are repeated on all sides, and those fulfilling the conditions required for permanency are still made temporary.

The question is one that only a strong Government can take in hand, but the present time seems most opportune. No doubt the army of small officers who add various sums from £5 to £100 to their incomes by accepting or assuming functions for which they have no special aptitude, just as they would take the more congenial work of a club or a poor-law appointment, will resist the change, but it must not be longer delayed, and for any medical officers who really have their hearts in the work, plenty of room could be found in the new combinations.

OVERDONE STERILIZATION.

There is a golden mean in all things and even the most salutary and sanitary practices can be carried to excess. In what may be termed microbophobia, the extremes of caution as to the exposure to pathologic germs, there may be a danger on the other side; one may, in avoiding the Scylla of organic infection fall into the Charybdis of chemical poisoning, or starvation. These thoughts are suggested by a paper by DR. LOUIS STARR in the December number of the *American Journal of the Medical Sciences*, in which he gives details of three cases of infantile scurvy due to the exclusive use of sterilized milk; and he further states that he has seen five other cases in consultation within eighteen months. He attributes the disease to the alterations that occur in the milk during the process of sterilization, especially in the lactalbumin which has its solubility diminished, and in the fat globules which coalesce with each other and with some of the insoluble albuminous matters. All the cases recovered promptly on a diet of unsterilized milk together with raw beef juice and orange juice and tonics.

DR. STARR seems to have no doubt as to the chemic nature of the toxic agent, but the suggestion is not a very unnatural one that there may be even some organisms in the diet that are beneficial if not essential to its wholesomeness. It is, it is true, generally held that the enzymes or unorganized ferments play the chief part in human digestion, but the final word has not yet been spoken on the question and there may still be a possibility of a certain utility of the lower organisms in digestion in man as there is undoubtedly in the herbivora, or the microbes, while not acting directly in digestion may, by their presence and products, indirectly aid the chemical changes in the process. While admitting the probability of the chemical alterations caused by the sterilization process being sufficient to account for the phenomena of innutrition and scurvy that were observed, it may be as well also to not altogether lose sight of other possibilities.

In our warfare against pathogenic germs it is well to remember that, as a rule, they require a suitable soil for their development, a point of least resistance for their attacks, and that most of them are comparatively harmless where this is lacking. We send consumptives to swarm together in Colorado and California, and to their advantage, notwithstanding the concentration of infection we thus produce; and likewise, whenever we lower the systemic tone by seriously modifying natural processes and conditions we open the way not only to outer infection, but perhaps still more to the dangers of auto-intoxication from the toxins produced in the system which require its normal condition for their safe disposal.

There is an extreme in this matter, that, baldly stated, would seem to any one ridiculous, such as the carbolated kiss; but there are more common practices less radical than this that fall somewhat short of the sweet reasonableness that should govern the conduct of a scientific physician, and, as we have seen, even apparently rational procedures sometimes fail of being fully on the safe side.

It is not intended here to say anything against reasonable precautions, but simply to call attention to a possible danger from lack of a comprehensive view of all the possibilities in any particular case.

SALE OF MEDICINES IN ORIGINAL PACKAGES.

The "original package" and "interstate commerce" contention has now, after a season with almost everything else ranging from liquors to pianos, been attached to the sale of medicines. Iowa has a statute which requires, under penalty, that any itinerant vendor of any drug, nostrum, ointment or appliance

of any kind intended for the treatment of disease or injury, who shall by writing or printing or by any other method publicly profess to cure or treat diseases or deformity by any drug, nostrum, manipulation or other expedient, shall pay a license of one hundred dollars per annum, to be paid to the treasurer of the commission of pharmacy. This statute, it was argued in the case of State v. Wheelock, decided by the Supreme Court of Iowa, Oct. 10, 1895, is repugnant to the clause in the federal constitution which provides that Congress shall have power to regulate commerce among the several States. The defendant here was an itinerant vendor of drugs and nostrums, without a license, within the meaning of the State statute, while the medicines he sold were in the original packages in which they were shipped into the State. Thus was fairly presented this important question.

To begin with, the courts admits that the power vested in Congress to regulate commerce among the several States is a power complete in itself to prescribe the rules by which that commerce is to be governed; that it is coextensive with the subject on which it acts, and can not be stopped at the external boundary of a State, but enters it, and is capable of authorizing a disposition of articles of commerce so that they become a part of the common mass of the property within the State. But, citing several decisions of the Supreme Court of the United States, it says that it has been held that State laws which do not discriminate between residents and products of a State and those of another State; which are not designed to interfere in any manner with interstate commerce, as those, for example, which are in the nature of a simple tax upon sales of merchandise, imposed alike upon all persons, whether residents or non-residents of the State, are not repugnant to the constitutional provision in question. However, after pointing out that there is no discrimination in the statute under consideration, the court goes on to state that its primary object is not to derive a revenue for the use of the State, but in large part, at least, to protect its citizens against solicitations and harmful practices of irresponsible and unknown traveling vendors of drugs and other articles intended for the treatment of diseases or injury, who, in carrying on their business, publicly profess to cure or treat diseases, injuries, or deformities and thus promote the sale of their wares to the credulous. Indeed, the act here prohibited might be committed without any actual sale.

The conclusion of the court is that the enactment in question is within the police power of the State. Narrowing the discussion, it says that the right to sell in original packages, medicines brought from another State, does not include the right to have sold by an unlicensed itinerant, who, to make sales, professes knowledge of the art of healing. Statutes which apply to such sales are not, in any sense, regulations of interstate commerce, but a reasonable exercise of the police power of the State, which may be applied as well to articles of interstate commerce in the hands of the vendor, and offered for sale in the original packages, as to articles produced within the State.

The amount of the license fee required by the statute, the court declares not to be excessive, and the regulations thereof, it pronounces reasonable.

THE DEPARTMENT OF PUBLIC HEALTH.

As announced in our Washington column last week, the Chairman of the Committee on the Department and Secretary of Public Health, DR. JEROME COCHRAN, has appointed an auxiliary committee in Washington, consisting of DRS. H. L. E. JOHNSON, S. C. BUSEY, C. H. A. KLEINSCHMIDT and J. R. WELLINGTON. The ASSOCIATION bill has not been introduced this session, but the old Bureau bill has been introduced in the House. The ASSOCIATION does not ask for a Bureau; it wants a Department, and intends to be satisfied with nothing less.

CORRESPONDENCE.

The Atlanta Meeting.

ROCKFORD, ILL., Dec. 6, 1895.

To the Editor:—Permit me to suggest that the Transportation Committee of the ASSOCIATION soon begin considering and agitating the question of railway rates to the meeting at Atlanta next May. It is not sufficient that transportation be secured for the editors of medical journals who have secured a square or half-page of advertising from railways and connecting lines to Atlanta. These journals may "whoop up" the meeting, but the rank and file, the bone and sinew of the profession, will not get there unless some generous concessions are made by the transportation companies.

Would it not be a good plan to secure a pledge in advance from the city or cities bidding for the ASSOCIATION to guarantee a cheap railway rate? The G. A. R., the political and the secret society conventions do this, or begin work early to secure minimum rates. The National Teachers' Association has just secured a rate of one cent per mile to Buffalo. The Knights of Pythias are contesting for the same, and the G. A. R. had this guaranteed in advance for the last three years. There is no reason why the AMERICAN MEDICAL ASSOCIATION should receive *less* consideration from these corporations than other organizations. I was going to say kindred organizations, but there is no Association that is akin to ours in any sense as far as regards great good to the common community of humanity; certainly the very antithesis of railway corporations in humanity's arena.

The JOURNAL has now secured a place and has a strength in affairs in the profession and out of it that will command attention. It outranks all other medical journals, and securing a large attendance at the meetings will secure a large subscription, and members will soon learn that the JOURNAL fills all the requirements of the general practitioner, and that he can dispense with the subscription price of three or four for which he has been paying and apply the same toward liquidating the expense of his trip the Associa-

TION meetings where he may, after a few successive attendances, acquire confidence enough to rise and express his views, not leaving the entire field of discussion to self-assured specialists or practical politicians and parliamentarians. D. L.

Women Medical Missionaries.

BOSTON, MASS., Nov. 30, 1395.

To the Editor:—We are desirous of finding a fully qualified medical lady to go to Ceylon as a missionary of the American Board of Commissioners for Foreign Missions at as early a date as possible (not later than Oct., 1896), to open the work of the Woman's Medical Mission in North Ceylon. The new buildings are in process of erection and will be completed according to the contract, furnished throughout and ready for occupancy within a few months. The Medical Mission House for the residence of the lady doctors, is large and commodious. The hospital will accommodate about forty patients. The Nurses' Training Home will accommodate sixteen nurses and a matron. Dr. Louisa H. Grieve (who is acting as a temporary supply until two permanent lady doctors can be secured for this work) has, at the branch dispensary, two days in each week, from fifty to one hundred patients each dispensary day. The branch dispensary will be continued and the new dispensary, which is ten miles distant, will probably receive as many patients. The American Board of Commissioners for Foreign Missions, the oldest and one of the most responsible Missionary Societies in the United States, which, on our recommendation, will appoint the lady doctors and have the general supervision of their work, will provide for the two medical ladies the usual allowances toward outfit, passage and salary, and will provide sufficient funds for the support of a staff of native helpers and for the current expenses of this Medical Mission for Women.

Location. The northern province in Ceylon, in which the Woman's Medical Mission is located, has a population of 300,000 people, all of whom speak the Tamil language. All the women and children would be accessible to the lady doctors.

Missionary Work. Ten missionary families, connected with three societies, are carrying on missionary work. There are about 3,000 native Christians who are communicants, and about 15,000 children under instruction in mission schools.

Medical Mission Work. Rev. Dr. and Mrs. Dr. Scott, both fully qualified doctors and missionaries of the A. B. C. F. M., have the oversight of the Medical Mission for men, which is located about a mile distant from the W. M. M. Last year they treated over 4,000 patients, and they are now enlarging their hospital accommodation. They have expressed their willingness to act as consulting physicians to the W. M. M.

Funds. The value of the land, buildings, furniture, equipment, medicines, instruments, and cash in hand of the W. M. M. is over $20,000, and the annual income is estimated at about $3,000.

Climate. The climate is an even one, the thermometer ranges from 78 degrees to 93 degrees in the shade. The rainfall averages about forty inches in a year. The dry heat is less enervating than the moist heat of many other places in Ceylon and India. Missionaries have lived and labored, in not a few instances, for thirty, forty, and in some cases even fifty years in this Province.

If any fully qualified medical ladies who are readers of your journal, and who have work in the foreign field in view, would write to us, we would gladly give them any further information they might desire regarding this work.

Yours truly,

MARY AND MARGARET W. LEITH.

The Oldest but Latest Fad—Hypnotis m.

To the Editor:—You will agree with me that it is a difficult matter to make *one cause* explain all phenomena. Sometime in the past I wrote an article for the JOURNAL under the heading, "Modern Insanity" and in a jocular way put it as a cause of many unique acts. At that time I had not "read up" on "Hypnotism." Since reading the last number of the JOURNAL I have reason to modify some of my views. Hypnotism in its latest phase assists wonderfully in explaining a phenomena heretofore not understood. For instance. *One* who is a *multiplex personality* can say in regard to his unusual acts, that Number 2 or Number 3, did the act, and therefore Number *one* is excusable. Whether or not he could make a court or jury believe him is another question. The average juror looks upon himself as a *unit* and may be hard to convince that any other individual is *more*. Evidently the "Fool Killer" is dead or has ceased work. How a medical man can be led astray by such idiotic "fads" as spiritualism, hypnotism, clairvoyance and other superstitions is hard to understand; and how a man can believe in hypnotism and yet not believe in "faith cures" is still another mystery. The idea that a man can influence another hundreds of miles away without any means of communication is not mysterious but simply untrue. The believers in hypnotism all agree that a man can not be hypnotized who is not willing. Does this not prove that hypnotism is not a *remedy?* Can a man by will power alone resist the influence of remedies? Can he keep calomel from purging or ipecac from vomiting by will power? Does it not "make you tired" to think that leading men in the profession will not only listen to this preposterous "fad" but will write it up, and indorse it in the leading medical journal in the United States? I am a little surprised that the editor allowed the "fad" space. When a man loses his identity and becomes two or three or a dozen different men then it is time to quit. When I am in a happier mood I may say more along this line, but for the present am done. Very respectfully submitted,

W. P. HOWLE, M.D.

Oran, Scott Co. Mo.

The Sun Glass as a Cautery.

WASHINGTON, D. C., Dec. 10, 1895.

To the Editor:—I notice in the last issue of the JOURNAL, a reference to the use of the sun glass as an actual cautery. Permit me to call attention to the fact that this is one of the oldest cauteries. Pliny, writing in the first century, Book XXXVIII, chap. 10, (Bohn's edition), says:

"I find it stated by medical men that the very best cautery for the human body is a ball of crystal acted on by the rays of the sun."

It is unfortunate that Pliny forbore to give his authority for I can find no other reference to this method of cautery in the ancient writings that I have consulted. Perhaps some of the learned readers of the JOURNAL may inform us.

Truly yours, AN OLD MEMBER.

Sulfonal in the Vomiting of Pregnancy.

ALLISON, IOWA,

To the Editor:—I have found this medicine a sure relief for this most obstinate trouble. I have been using it over a year, have recommended it to neighboring physicians and never knew it to fail. Those who have tried it say it works like magic. It will relieve hiccough as effectually as well. My method of giving is 10 to 15 grains (60 to 1), dissolved in two tablespoonfuls boiling water, and given as hot as the patient can bear it. Sulfonal will stop vomiting of most any character, the quickest, safest and surest of any remedy n the category of medicine. I believe every physician hould know this and hope the JOURNAL will pass it around.

S. E. BURROUGHS

PUBLIC HEALTH.

Hygienic Examination of Water.—At the twentieth meeting of the Society for the Care of the Public Health, at Stuttgart, in September, Flügge's opinions were embodied in the following conclusions: 1. The usual hygienic consideration of water, based solely on the clinical, bacteriologic and microscopic examination of submitted samples are in almost all cases worthless. 2. A single examination of a water must consist first of an inspection and an expert investigation of the source and nature of the surroundings. In many cases this alone will decide as to its safety for use. Usually a rough, physical examination and a determination of the iron and the hardness are a desirable addition. Seldom is a further clinical, bacteriologic or microscopic examination necessary to make the decision sure. In case of a new supply of ground water the freedom from germs must be especially assured. 3. For the continued control of water supplies, the bacteriologic and sometimes the clinical analysis is advantageous. The hygienic importance of noteworthy results of analysis is generally to be gathered only from the repeated inspection and examination of the sources of supply.—*Deutsche Medicinische Wochenschrift*, Oct. 31, 1895.

The House We Live In.—This is the advice of the late lamented Prof. J. M. Coates: "Think deliberately of the house you live in, your body; make up your mind firmly not to abuse it; eat nothing that will hurt it; wear nothing that distorts or pains it; do not overload it with victuals or drink or work; give yourself regular and abundant sleep; keep your body warmly clad. At the first signal of danger from the thousand enemies that surround you, defend yourself. Do not take cold; guard yourself against it; if you feel the first symptoms, give yourself heroic treatment; get into a fine glow of heat by exercise; take a vigorous walk or run, then guard against a sudden attack of perspiration. This is the only body you will ever have in this world. A large share of the pleasure and pain of life will come through the use you make of it. Study deeply and diligently the structure of it, the laws that should govern it, and the pains and penalties that will surely follow a violation of every law of life or health."—*Indian Med. Rec.*

Boiled Water a Preventive of Autumnal Fevers.—The *Bulletin* of the Tennessee State Board of Health, for November 20th, contains a discussion of the prevention of the fevers that follow a hot and dry summer in the southern belt of States. From the first settlement of Tennessee and the surrounding States it has been noted that a long, hot, dry summer or autumn was the sure precursor of the unusual prevalence and virulence of malarial fever. This axiom has never failed in its forecast. It is equally true now as it was in the early quarter of the present century. Those who have been wise, even from earlier days, have found their advantage in the boiling of their drinking water. Moreover, it is now known that the great prevalence of the fevers of the fall is not dependent wholly upon the climate, high temperature and decaying vegetation, but more upon the condition of the water supply in the regions affected. To quote the pen-picture as sketched in the *Bulletin:* "The long-continued drought converts beautiful creeks into rocky beds, with loops of stagnant pools. The springs often go dry. The wells are almost empty. Thus the water becomes foul from seepage, and no longer fit for drinking." It is important, therefore, to press home the simple preventive measure of water-boiling upon the attention of the millions inhabiting the richest fields of the South and Southwest. This vast region has been captiously condemned by many writers because of the autumnal fevers. "It has been pronounced a malarial-cursed region, always doomed to mental inferiority thereby. In all districts above described, the practice should be universal of boiling all water intended for drinking; also, this water should be cooled in covered vessels, thus avoiding contamination by any impurities in the atmosphere." The closing paragraph of the *Bulletin* is, in effect, as follows: "If this simple and cheap means of changing very unhealthy water into innocent drink were universally adopted in all the malarious districts throughout Tennessee, the country would be as free from malarial affections as are the cities. In our cities the few cases of autumnal fever that occur, especially if they be called typhoid, attract much attention and alarm. In the country they are hardly noticed, because of their common occurrence. At present, it may be safely affirmed that a hundred thousand Tennesseans, or neighbors, living within a city, are in better health than the same number dispersed through the hills and valleys of two or three beautiful counties. In the city sanitation has become a main object with the people. In the country they are still asleep." *Boil the water.*

Health Reports.—The following health reports have been received by the Supervising Surgeon-General, Marine-Hospital Service:

SMALLPOX—UNITED STATES.

Arizona: Nogales, Dec. 1, 1 case.
Michigan: Detroit, Rochester and Park townships, Nov. 23 to 30, smallpox reported.
Louisiana: New Orleans, Nov. 23 to 30, 11 cases, 1 death.

SMALLPOX—FOREIGN.

Nogales, Mexico: Dec. 1, 1 case.
Madrid: Nov. 12 to 19, 9 deaths.
Montevideo: Oct. 26 to Nov. 2, 8 cases, 1 death.
Odessa: Nov. 9 to 16, 7 cases, 1 death.
Rio de Janeiro: Oct. 19 to Nov. 2, 130 deaths.
Rome: Nov. 14 to 21, 1 death.
Rotterdam: Nov. 16 to 23, 4 cases.
Warsaw; Oct, 26 to Nov. 16, 2 deaths.

CHOLERA—FOREIGN.

Bombay: Oct. 29 to Nov. 5, 6 deaths.
Calcutta: Oct. 19 to 26, 36 deaths.
Ceava: Oct. 24 to 31, 2 cases, 2 deaths.
Osaka and Hiogo: Oct. 26 to Nov. 2, 1 death.
Yokohama: Oct. 25 to Nov. 1, 4 cases, 4 deaths.

YELLOW FEVER—FOREIGN.

Cienfuegos: Nov. 24 to Dec. 1, 4 deaths.
Rio de Janiero: Oct. 19 to Nov. 2, 13 deaths.
Vera Cruz: Nov. 21 to 28, 1 death.

RIO DE JANEIRO, NOV. 5, 1895.

Supervising Surgeon-General WALTER WYMAN, SIR: I have the honor to remit report for the week ended Nov. 2, 1895.

There were ten deaths from accesso pernicioso, an increase of 2; 9 from yellow fever, an increase of 5; 54 from smallpox, a decrease of 26; 2 from Beriberi, a decrease of 2; 3 from enteric fever, the same as in the foregoing week; 45 from tuberculosis, a decrease of 10; and none from measles or whooping-cough. From all causes there were 338 deaths, a decrease of 65.

Yellow Fever—With the late increase in the temperature, there are appearing more cases of this disease, though, as yet, there is nothing to cause alarm, there appears to be a general uneasiness on this subject.

Smallpox—In this week there is a great decrease both in deaths and cases of this disease, though it is still rife enough, and in the last three days it is still declining, what was to be expected with the hot weather. In Victoria it still persists though it is further toward the equator; to the south and in the interior towns it is declining according to telegraph reports. Respectfully yours,

R. CLEARY, M.D.,
Sanitary Inspector, M. H.-S.

NECROLOGY.

EPHRAIM W. BULL, M.D., of Concord, N. H., died Sept. 27, in the ninetieth year of his age. He was a benefactor of his fellow countrymen in the discovery of the Concord grape-vine and some others not so well known. A writer in the *Independent* writes of his career as follows: "Dr. Bull was a native of Boston and physician there until ill health compelled him to give up his practice, in 1882, and remove to Concord, where he bought a small place about a mile from the station. He was a lover of flowers and fruit and a close observer of nature. The stories differ as to how he discovered the parent of the Concord vine. The common one has been that Dr. Bull noticed a wild vine of the *Vitis Labrusca*

species growing on a fence, the fruit of which seemed a great favorite with the birds. The skin of the berries was thin and tender and the flesh sweet and pulpy. He removed it to his garden where it still remains, and grew thousands of seedlings from it, one of which became the Concord. A visitor to the place has stated that Dr. Bull told him he found the original vine on the place, removed there by a former owner. Another account says that the Concord itself was the vine found growing along a woodland path. However, the fact remains that it was Dr. Bull who long and patiently experimented to improve and make the best of the native vine."

J. EDWIN MICHAEL, M.D., dean of the University of Maryland, died at his home in Baltimore Dec. 2, of Bright's disease. Dr. Michael was born in Hartford county, Md., May 13, 1843. His parents were extensive land-owners. After receiving his early education in the schools of the county and being prepared for college by a private tutor, he entered Princton, graduating in the class of 1871. He then came to Baltimore and entered the medical department of the Maryland University, from which he graduated in 1873. He was not known as a brilliant student at first, failing twice in anatomy, the branch he afterward made his specialty. After leaving the University he traveled through Europe, taking courses in medicine in Vienna and Wurzburg. On his return to this country Dr. Michael settled in Baltimore, where he built up a large practice. In 1876 he was elected demonstrator of anatomy in the University of Maryland and professor of anatomy and clinical surgery in 1880. In 1890 he was elected to the chair of obstetrics, immediately following his election to the deanship of the University. He was a member of the American Surgical Association and ex-president of the Clinical Society of Maryland. At the time of his death Dr. Michael was president of the Medical and Chirurgical Society of the State.

DAVID M. MILLER, M.D., of Elizabeth, N. J., who died at his home Dec. 3, was prominent as a surgeon in Union and adjacent counties of his native State. He was born in 1858 in Jersey City, and educated in arts at Princeton College, and obtained his medical degree from the College of Physicians and Surgeons, New York, in the class of 1883, and soon after settled permanently in Elizabeth.

PROF. VOITOV.—The death is reported from the Crimea of M. Voitov, Professor of Bacteriology in Moscow, who has fallen a victim to his favorite science.

LUTHER PATTEE, M.D., of Manchester, N. H., died Nov. 27. He was born in Warner, N. H., Dec. 1, 1831, and was the son of Asa Pattee of that place. After a thorough preparation under the direction of various medical men he entered the medical school at Woodstock, Vt., from whence he was graduated in 1853. After practicing medicine in Canada for several years he removed to Manchester, where he remained until 1870, at which time he went to Boston. After practicing in that city nearly five years he returned to Manchester, where he has since resided.

A. J. SAYLOR, M.D., of Frankfort, Ind., Dec. 1, aged 45.——John A. Jones, M.D., of Mansfield, Ohio, Dec. 3, aged 64. He leaves an estate valued at $200,000.——A. J. Hobart, M.D., of Columbus, Iowa, Dec 6, aged 67.——H. K. Palmer, M.D., of Pueblo, Colo., Dec. 7, aged 65. He was a brother of Senator Palmer, of Illinois.

SELECTIONS.

Physicians in the French Ministry.—The new French Ministry includes three representatives of the medical profession. M. Berthelot, the Minister for Foreign Affairs, is a member of the Institute and of the Academy of Medicine; he took the M.D. degree in 1865. M. Viger, the Minister of Agriculture, and M. Combes, Minister of Public Instruction, are also Doctors of Medicine. MM. Berthelot and Viger have each already formed part of several ministries. M. Combes, who now for the first time holds a portfolio, is Vice-President of the Senate, in which he sits for the Charente Inférieure.—*British Medical Journal.*

Military War Trains.—The Canadian Pacific Railway, after many months of labor, has constructed at an enormous cost two special military or war trains, comprising fourteen cars for men, two cars for cooking, two Pullman cars for officers, two cars for arms and stores, and two dining cars. The officers' cars are luxuriously fitted out, and contain state rooms, lavatory, smoking room, etc. Each train is composed of eleven cars and engine, and gives ample sleeping accommodations for 306 men and 15 officers, although over 100 more men could find room. The men's cars are well finished and furnished with modern improvements. The kitchen car has all the utensils of a large-sized hotel, and requires six cooks and two helpers. This one car can turn out over one thousand five hundred meals a day. During a trip from Halifax to Vancouver on the war train, 5,500 meals for officers and men were prepared. The Canadian Pacific Railway expect to cover the distance from the Atlantic to the Pacific in five and a half days.—*British Medical Journal.*

Anthrax Septicemia in Man.—Blumer (Bulletin of the Johns Hopkins Hospital, vol. VI, Nos. 54 and 55) describes an unusual case of anthrax septicemia in a man, associated with acute endocarditis and peritonitis due to anthrax bacilli. The patient was a laborer 59 years old, employed in a hair factory, who scratched his right eye with his hand while working with hair from South America. The following day the eye was swollen and on the second day still more so. By means of incision a thin fluid was obtained from the eyelid which was found to contain anthrax bacilli in pure culture. Four days after the onset of the swelling, there was some fever while the edema had extended over the face and head, especially the right side. A day later, symptoms of interstitial disturbances and of peritonitis developed. Death occurred six days after the first sign of any swelling about the eyelids had made its appearance. At the autopsy there was found, in addition to the edema of the subcutaneous tissue, a recent vegetative mitral endocarditis, a serohemorrhagic peritonitis, and acute anthrax lesions of the intestines. The bacteriologic examination showed anthrax bacilli in the heart's blood, the spleen, the peritoneum, the liver and the lung. The especially interesting features in connection with this edematous form of anthrax, which is certainly very unusual in this country, are the clinical symptoms of intestinal lesions and peritonitis and, anatomically, the development of an anthrax endocarditis upon a previously normal valve.

A Case of Tuberculous Parenchymatous Keratitis.—Zimmermann (*v. Graefe's Arch. f. Opthalm.*, Bd. XLI, No. 1) records a case of parenchymatous keratitis which he observed clinically and subsequently subjected to microscopic examination. The clinical course was that of a parenchymatous kerato-iritis, while the microscopic findings showed a well-marked tuberculosis of the cornea, the sclera, and the iris, the posterior portion of the eye being free from tuberculous changes. Except some ozena there were no other disturbances in the health of the patient, who was free from hereditary influences. The espscially interesting feature in this case is the demonstration of a well-marked tuberculosis in the cornea with giant cells and tubercle bacilli. In spite of the negative clinical history and objective examination the author believes that the process is not due to a primary, but to a secondary infection of the eye.

MISCELLANY.

Fatality from Overeating.—The New York papers contain an account of a remarkable case of gluttony with a tragic ending. Last Sunday a man indulged in seven pickled pig's feet, or "Trilbys," as they are called. Twenty-four hours later he was dead; *causa mortis* acute indigestion and colic.

Increasing Volume of Medical Work by Missionaries.—The Church Missionary Society is one of the largest and best endowed of the organizations of that kind in England and in the world. It is constantly making use of the medical man as a missionary and conservator of their forces in the numerous fields in the uncivilized world. In 1894 there was a considerable hospital extension; there were 5,000 in-

patients under hospital treatment, and 370,000 out-patients. These are probably the largest annual totals ever presented by this or any other similar society.

Tuberculosis Loves a Shining Mark.—The fell leveler phthisis has his relentless hold upon the brother of the Czar of all the Russias, and the condition of that prince is precarious. The following is the latest item of news by cablegram:

Drs. Simanovski and Sheresleffski, court physicians, have been summoned to Abbas-Tuman, in the Caucasus, to attend the Grand Duke George, the czarowitz, whose condition has become very much worse. The dowager czarina, the grand duke's mother, and her daughter, the Grand Duchesse Xenia, and her husband, are also hastening to the czarowitz' bedside.

Bad Basis for Expert Opinion.—It is not competent, the Supreme Court of Minnesota holds, in the case of Miller v. St. Paul City R. Co., decided Oct. 15, 1895, for a medical expert to give in evidence an opinion as to the cause of a person's physical condition or injuries, based in part upon information which he has derived from private conversations with a third party. The opinion rejected in this case was based on an examination made by the expert on the morning of the day it was given and on the statement and the history of of the case which the attending physician furnished him at the time the examination was made.

Medical Counts and Barons.—Among the titled personages of France who have gone into medical pursuits are Baron Henri de Rothschild, Counts de Sinety and Goyan, and the Duke de Rivoli. The *Gaulois* states of the Count de Goyan that he is a prominent royalist, formerly a member of the Chamber of Deputies, and has taken the degree of Doctor of Medicine at the Paris Faculty with the object of giving himself up to the treatment of the sick poor. In this, Count de Goyan has followed the example of the Duc de Rivoli (also a former Deputy), Count de Sinety (member of the Jockey Club), and M. Rembielinski (well known in Paris society). All these gentlemen began the study of medicine after the age of thirty, and went through the prescribed course, passing their examinations and taking their degree in the ordinary way. Baron Henri de Rothschild, who is also preparing for the medical profession, entered himself as a student when very young. He has a pronounced taste for surgery, and his present intention is said to be to found a surgical hospital at his own expense.

Albany Medical College Alumni Association of Greater New York.—A large number of representative medical men, many of them prominent in this and adjoining cities who are graduates of the adjoining Albany Medical College, met at the residence of Dr. Horace S. Hanks on Madison Avenue on the evening of Dec. 5, and organized an association with the above title. The following officers were elected: President, Dr. John W. Warner; Vice-President, Dr. Horace S. Hanks; Secretary, Dr. Warren C. Spaulding; Assistant Secretary, Dr. Robert F. McFarlane, Long Island City; Treasurer, Dr. Allen S. Fitch. Governors, Dr. Henry F. Müller, of Brooklyn Dr. L. N. Lanehart, of Hempsted, L. I., Dr. Robert E. Finney, Dr. John A. Cutter, of New York. Inasmuch as there are over 100 graduates in greater New York these gentlemen feel a certain pride in honoring their alma mater and have taken this course to do so. The first annual dinner is to be given Thursday, Jan. 9, 1896.

Bacteriology and the Farmer.—The address on medicine at the annual meeting for 1895 of the Canadian Medical Association was delivered by Dr. Edward Farrell, of the Halifax Medical College. His discourse led him to a consideration of the rapidly increasing money-value of bacteriology as a utilitarian, rather than a purely scientific pursuit. In order to show what science can do in building up a trade, he called attention to the extraordinary fact that Denmark at the present time almost controls the market of England in the supply of the best articles of butter. The farmers of Denmark have no special advantage over the farmers of England other than this, that in Denmark the government has established scientific schools in which the subject has been closely studied. Their bacteriologists have succeeded in isolating the various types of germ that produce special changes in the course of butter production, and by the artificial application of these they control and direct the fermentive process. Dr. Farrell urged upon the association that, inasmuch as medicine had given bacteriology to the world, the association was in duty bound to urge upon the government the advantages of schools of experimental science constructed upon a liberal plan and generously supported. Regarding the details, wherein the bucolic and pastoral interests are linked with the work of the bacteriologist, the address made some reference. The interesting whole may be read in the *Montreal Medical Journal* for September, of which the following is a part:

"In most countries it is the farmer who is the real wealth producer. In this country farming is by far the most important industry; to it we look for the production of the food supply of the world. When we consider the enormous amount the export of the product of the farm returns to this country we can gather some idea of the immense importance that agriculture is to us. It is not necessary, then, to prove that everything that tends to give a more successful yield to the labor of the farmer should claim the special attention of the government. I am glad to see that the fact is being recognized, though slowly, that the pursuit of agriculture requires an education in science, and so we find that schools of agriculture, experimental farms, and other means of teaching scientific farming are growing up among us. But we are only waking up to the importance of this special scientific training, and though we lead the mother country in this respect (for this subject is to a large extent neglected in England), still we are only making a small part of the effort that should be made in this direction. In many European countries, by reason of the fact that science is fostered and supported by the government, its influence upon agriculture, manufacture and the arts is more quickly recognized and applied than in England or America. This new science of bacteriology has an especial relation to agriculture. As we now know that bacteria have a direct influence upon human life and its diseases, so the life of other animals and plants must be equally under the power of bacterial growth. To show the extent to which this is true it is only necessary to name some of the diseases of animals that are known to be due to microörganisms, such as glanders, tuberculosis, with its poisoning power on meat and milk, anthrax or wool-sorters' disease, actinomycosis or lumpy-jaw. In addition to these there must be other diseases due to bacteria in the various animals used for human food, and the raising of our food products in a perfect and healthy form is most important to the trade interests of the country. Then there must be the special bacteriology of each plant with its various blights, a thorough knowledge of which must be necessary to successful agriculture. The products of the dairy, butter and cheese, are governed in the changes that take place in their manufacture by what is known as fermentation. We now know that this fermentation is a complex process brought about in its different forms by various kinds of microörganisms and that each organism has the power of influencing the color, taste and quality of the product."

The Journal of Experimental Medicine (Quarterly).—Messrs. D. Appleton & Co., of New York, announce that in January, 1896, will appear the first number of *The Journal of Experimental Medicine*, a periodical devoted to original investigations in physiology, pathology, bacteriology, pharmacology, physiologic chemistry, hygiene and practical medicine. Dr. William H. Welch, Professor of Pathology in the Johns Hopkins University, is to be the editor of the new journal, and with him will coöperate a board of twelve associate editors as follows:

For Physiology—H. P. Bowditch, M.D., Professor of Physiology, Harvard University; R. H. Chittenden, Ph.D., Professor of Physiologic Chemistry, Yale University; W. H. Howell, M.D., Ph.D., Professor of Physiology, Johns Hopkins University.

For Pathology—J. George Adami, M.D., F.R.C.S., Professor of Pathology, McGill University; W. T. Councilman, M.D., Professor of Pathologic Anatomy, Harvard University; T. Mitchell Prudden, M.D., Professor of Pathology, Columbia College.

For Pharmacology—John J. Abel, M.D., Professor of Pharmacology, Johns Hopkins University; Arthur R. Cushny, M.D., Professor of Materia Medica and Therapeutics, University of Michigan; H. C. Wood, M.D., Professor of Materia Medica, Pharmacology and Therapeutics, University of Pennsylvania.

For Medicine—R. H. Fitz, M.D., Professor of the Theory and Practice of Physic, Harvard University; William Osler, M.D., F.R.C.P., Professor of Medicine, Johns Hopkins University; William Pepper, Professor of the Theory and Practice of Medicine, etc., University of Pennsylvania.

In addition to the above forty-two gentlemen have consented to act as "collaborators."

Practical Notes.

Extirpation of the Spleen.—Schalita (*Arch. f. Kl. Chirurg.*, Bd. XLIX, H. 3) describes a case in a woman, 36 years of age, who had always been well, but in whom there had gradually developed a fluctuating tumor in the region of the spleen that filled the larger part of the left half of the abdomen. A laparotomy was made in the linea alba, and a large quantity of fluid of a brownish color was evacuated through a trocar. Splenectomy was then made and recovery ensued. The tumor, which was as large as a man's head, was attached to the inferior surface of the spleen. This tumor or swelling is regarded as the result of hemorrhage either from the rupture of an aneurysm of a branch of the splenic artery or from a subcapsular hemorrhage due to other causes, in consequence of which the cyst gradually formed. Examination of the blood for some time after the splenectomy did not show any changes in the corpuscles.

Treatment of Pneumonia by Digitalis.—The author, who has tried in sixty-four cases the treatment of pneumonia by digitalis according to the method of Petresco (de Bucarest), sums up the results he has obtained under the form of the following conclusions:

1. Digitalis in large doses forms one of the most powerful therapeutic means against pneumonia.
2. It causes a favorable action on the heart, lungs and blood.
3. In large doses, digitalis shortens the duration of pneumonia and gives an increase of the leucocytes.
4. A dose of one gram of the powdered leaves, and daily doses of four to five grams, are borne without convenience.
5. Hydrotherapy (cold water) assists in these conditions the action of the digitalis.—Naegeli-Akerblom: *Centralb. f. Innere Medic.* 1895, No. 32. *Revue Internationale.* No. 22.

Diseases of the Prostate.—Dr. Gabriel Colin ends a general review on the treatment of diseases of the prostate in the *Revue Internationale de Médecine et de Chirurgie Pratiques*, with the following conclusions:

1. It is important to be able to promptly diagnose prostatic hypertrophy, and to employ from the beginning such vigorous treatment as will arrest the disease or cause it to retrograde in its progress. If the bladder empties itself easily, a medical and hygienic treatment will be sufficient; if it does not, one will have to have recourse to catheterism, repeated frequently, so that the bladder may never become overdistended.

2. In case of enormously enlarged prostate, great difficulties in catheterism, false passages, retention with distension, free hematuria, or serious infection, catheterism, Guyon's *mandrin sonde a demeure* will almost always suffice to meet these accidents.

3. When it is well proven that these methods have failed or are insufficient (but only then) a more active surgical interference should be attempted. We have the choice, according to the case, between the operations that we have studied (exceptional operations for exceptional situations).

Such are, I believe, the rules and the course to be followed by every conscientious physician, bearing in mind that we ought to go from the simple to the compound, commencing by the ordinary and current methods before proceeding to more serious interventions, and that it is the duty of every surgeon to operate without hesitation when he has the proper indications, but always to wait for these.

The recent operations, of which we have said some words, do not permit us to lose sight of what we may deduce from the old and methodic treatment, the rules of which have been so masterly studied by Prof. Guyon. Imbued with these principles, we will be prepared in the present state of urinary surgery and therapeutics to afford the most important aid to our sufferers from prostatic diseases.

Poisoning by Creolin.—Dr. O. Pinner, physician to the Jewish hospital at Hamburg, reports in the *Deutsche Medizinsche Wochenschrift* what he believes to be the seventh recorded case of poisoning by creolin. His case was that of a female 60 years of age, who had attempted suicide by swallowing seventy-five grams of creolin. It was at first not known which of the preparations called creolin had been taken, but the druggist from whom it was purchased subsequently stated that he only sold Pearson's. The woman was found unconscious in her room and was taken to the hospital two hours after the attempt on her life. She was then comatose, with livid face, moist skin and blue lips; her right pupil was larger than the left, and there was no reflex action on the cornea. Her temperature was 36.6 degrees C., her pulse 112 and regular, and her respiration deep and snoring, with tracheal rales. In the pharynx there was a large quantity of white mucus; the palatal arches and the posterior wall of the palate were covered by a grey superficial coating. There was a strong smell of creolin in the breath. By the stomach-pump 300 grams of a thick, grey fluid mixed with mucus were withdrawn, and pressure on the pylorus caused thick brown drops of pure crolin to come through the tube. The first urine (150 grams) was of a light yellow color, without albumin, sugar or indican; the bromin water test showed traces of tar acid in it. Microscopic examination revealed nothing abnormal. Milk given through an esophageal tube was immediately vomited, but was eventually retained.

An hour after admission into the hospital there were well-marked symptoms of shock, for which injections of ether were successfully made. There were also copious diarrhea, and the stools had an odor of creolin. Some hours later the patient regained consciousness and afterward became better. She complained of severe pain in the epigastric region and in the pharynx. The urine (80 grams) was now of a dark green color, had an odor of creolin, and contained traces of albumin; by the tribromphenol reaction it was estimated that 7.5 c.c. of tar substances were present in 100 c.c. There was no hemoglobinuria, and only a small quantity of leucocytes and red corpuscles and some casts. The patient slept very well during the first night, and on the following day there was an obvious improvement, the pulse, temperature and respiration being normal, although she still complained of headache, want of appetite and hoarseness, and an erosin on the epiglottis and the arytenoid cartilage was observed with the laryngoscope. On the fourth day there was more diarrhea, the stools still smelling of tar products. The urine continued for a week to be of a green color and contained 1-5 per cent. of albumin, with much indican. After four weeks the patient was able to leave the hospital in perfect health and did not show any trace of injury from the poisoning. Notwithstanding the alarming symptoms of the first few hours, the patient very soon recovered, the creolin being obviously removed by the kidneys, which, though disordered for a short time, did not sustain any permanent injury. Creolin, therefore, according to Dr. Pinner, must be regarded as a comparatively innocuous substance, although it is remarkable that such extremely severe symptoms followed almost immediately after the poison had been swallowed. Creolin, he says, used to be considered harmless because it could not be absorbed by the stomach, but in the above case the gastric juice very soon transmitted the creolin into a form which very quickly passed into the circulation and appeared after two hours in the urine.

Death of One of Koch's Earliest Tuberculin Patients.—Dr. J. G. Adami, Professor of Pathology at McGill University, has given to the *Montreal Medical Journal*, September, an account of the autopsy made by him upon one of the first patients

treated by tuberculin, in 1890. The patient was nearly a year under Koch's treatment at the Victoria Hospital of Berlin, and under the usual periodic inoculations with tuberculin he began to regain appetite and body weight; his night-sweats passed away, and his general health appeared to be restored. The patient, a native of Finland, aged 33 years, a highly intelligent man, a skilled mechanic in engineering, was taken down for the first time early in 1890, with cough, hemoptysis, night-sweats and progressive emaciation. The patient from Berlin went to Finland and thence, in 1893, to Montreal. He remained apparently in perfect health until January of this year, when the cough returned, and all the old symptoms—night sweats, loss of flesh and bodily weakness. In March there was an hemoptysis, about half a gallon of blood being lost; there were two other severe hemorrhages later. From this time until April 18th, he being now a patient at the Royal Victoria Hospital, there was constant slight expectoration of blood with but little cough. On this last date severe hemorrhages recurred, in all about a quart of blood being lost. Following upon this, there was rapid loss of vital power, and the patient died ten days later. At the autopsy it was noticeable that there was no indication of tuberculosis other than in the lungs, save for some quite recent and minute ulcers in the jejunum and ileum. The lungs, however, presented very characteristic tubercular changes. There were firm adhesions at both apices—so firm that on the left side the knife had to be employed to separate them. Both apices showed old tuberculosis in the shape of well-encapsuled caseous masses and small contracted cavities with dense envelopes and smooth but uneven internal aspect. In addition, the upper two-thirds of the uppermost lobe of the right lung and the upper half of the upper lobe of the left lung were greatly consolidated, contracted and presenting very well-marked interstitial fibroid change. Here evidently in both apices were to be seen the results of treatment in 1890–91—abundant signs of arrest of the tubercular process. It was, however, clear that the process had only been arrested—for the rest of the lung tissue was the seat of nnmerous rather large miliary tubercles, which from their distribution were broncho-pneumonic—distributed along the course of sundry bronchi. Injecting the pulmonary arteries with water led to the escape of the fluid through one of the main bronchi of the upper lobe of the left lung. Following this up a long cavity was entered into containing a globular laminated clot over what was the seat of rupture of the artery. Some difficulty was experienced in finding the actual lesion, the artery filled with thrombus escaping detection for some little time. Bringing all these facts together it would seem most probable that the second attack of advancing tuberculosis was not a second infection, or infection anew, but originated in the old arrested foci of the disease, where the process lighting up again in the walls of one of the old incompletely contracted cavities had been followed by dissemination of the virus throughout the air passages, and had prepared the way for rupture of arteries passing along the walls of the cavity.

Hospital Notes.

The annual report of the Mercy Hospital, conducted by the Sisters of Mercy, in Chicago, shows that 1,373 patients have been treated during the year.——At a meeting of the trustees of the new Western Hospital for the Insane held in Springfield, Ill., Dec. 9, it was decided to erect the institution in Rock Island. The site is said to be the handsomest one for hospital purposes in the State.

Society Notes.

The Third International Congress of Psychology will take place at Munich, Aug. 4–7, 1896. President, Prof. Stumpf, Berlin; Vice-President, Prof. Lipps, Munich; General Secretary, Dr. Schrenck-Notzing, Munich. The International Committee of Organization includes the names of many of the most distinguished psychologists of the world: Bani, of Scotland; Baldwin, of Princeton; Bernheim, of Nancy; Delboeuf, of Brussels; Donaldson, of Chicago; Ebbinghaus, Breslau; Ferrier, London; Fullerton, Philadelphia; Stanley Hall, Worcester; Hitzig, Halle; James, Harvard; Lehmann, Copenhagen; Liégeois, Nancy; Witmer, Philadelphia; Mendelssohn, St. Petersburg; Monokow, Zurich; Morselli, Genoa; Myers, London; Newbold, Philadelphia; Preyer, Wiesbaden; Richet, Paris; Schäfer, London; Sedgwick, Cambridge; Sully, London; Ward, Cambridge. The invitation to membership is extended to all interested in psychology, and the membership fee is 15 marks. The work of the Congress is to be carried on in four Sections, viz: Psychophysiology, including cerebral anatomy and physiology, and psychophysics; Normal Psychology; Psychopathology; Comparative Psychology. Those interested in the work of the Congress and desirous of learning the details of the preliminary program will receive the invitation and announcement on sending name and address to Dr. C. G. Chaddock, 610 N. Garrison Avenue, St. Louis, Mo.

Mitchell District Medical Society.—The midwinter meeting of this Society will be held at Bloomington, Ind., Thursday and Friday, Dec. 26 and 27, 1895. A sufficient number of papers have been promised to insure the success of the meeting. The address on the evening of the 26th will be delivered by Prof. Daniel R. Brower, of Chicago, on "The Marks of Disease in the Habitual Criminal and the Remedy, Illustrated by the Stereopticon." The program will be issued Dec. 20.——The annual meeting of the Syracuse, N. Y., Academy of Medicine was held Dec. 3. The following officers were elected for the ensuing year: President, John Van Duyn; First Vice-President, Eli Van de Warker; Second Vice-President, D. M. Totman; Secretary, T. H. Halsted; Treasurer, E. L. Mooney.——The annual meeting of the Baltimore and Ohio Association of Railway Surgeons was held in Pittsburg Dec. 3. The followlng officers were elected: President, J. M. Spear, Cumberland; First Vice-President, S. S. Good, Meyersdale; Second Vice-President, P. B. Short; Secretary and Treasurer, J. A. McKean.——The monthly meeting of the McLean County Medical Society was held in Bloomington, Ill.——The fifty-first semi-annual meeting of the Northwestern Ohio Medical Association was held at Findlay, Ohio, Dec. 12 and 13.——The sixty-first annual meeting of the Fox River Valley Medical Association was held in Aurora, Ill., Dec. 10. Officers were elected as follows: President, H. W. Richardson, Marengo; Vice-President, M. M. Robbins, Aurora; Secretary, J. W. Bumstead, Dundee. The next meeting will be held in Elgin.

Detroit Notes.

The Children's Free Hospital is now assured, thanks to the $125,000 that the noble philanthropic citizen Mr. Hiram Walker gave, which gift he has set aside for the purchase of the ground and building, and whatever surplus remains, to be devoted to current expenses. The Children's Free Hospital Association was first organized in 1886, and was connected with Harper Hospital; but as the facilities were inadequate, it was moved to a large building corner of Seventh and Fort Streets. The Association is under the government of a Board of lady residents well-known in the noble work of charity, assisted by an Advisory Committee of prominent business men. The affairs of the hospital are under the direction of a Superintendent assisted by a head nurse. A house physician resides in the hospital. During the first year, the hospital cared for 80 children, second year, 136, increasing each year until the number of admissions reached 259 the past year. The percentage of children discharged cured each year has averaged from 50 to 60 per cent. of admissions, improved from 20 to 25 per cent., unimproved about 5 per cent.; while the death rate has never exceeded 10 per cent. of admissions, which is a strong argument in favor of an institution of this character if one were needed, when it is taken into consideration that the majority of children treated in it would drag along without any medical treatment or tender care bestowed upon them, until death relieved them of their misfortune. The medical staff is composed of prominent physicians of the city, each a specialist, with Dr. C. A. Devendorf as chief of staff. In connection with the hospital there is an outdoor clinic, established in 1893, where patients not sick enough to be admitted to the hospital, yet needing care, are treated free of charge.

The proportion of children admitted this year exceeds the average, and at present there are 32 children in the hospital under treatment and convalescing, while over 250 have re-

ceived treatment in the outdoor clinic since Jan. 1, 1895. The new hospital, now almost completed, has all modern conveniences. The boiler-room being entirely separate from the main building, and all rooms will receive the sunlight. The hospital will accommodate 64 children, and will be ready for occupancy April 1, 1896.

THE WAYNE COUNTY MEDICAL SOCIETY at its regular meeting Thursday, Dec. 5, listened to a very interesting paper on "Anesthetics," by Dr. Kenneth Gunsolus, in which he took up the discovery, history and use of anesthetics. The majority of the members were of the opinion that chloroform was the preferable drug, excepting in such cases as it was counter-indicated.

DETROIT MEDICAL AND LIBRARY ASSOCIATION.—At the regular meeting of this Association, the secretary, Dr. Anderson, read a paper by Dr. Charles A. Oliver, of Philadelphia, entitled, "The Action of Hydrobromate of Scopoleine Upon the Iris and Ciliary Muscle." Dr. Daniel La Ferte read a paper entitled, "Club Foot." The doctor also exhibited a patient upon whom he had operated by the Phelp's method.

HEALTH OFFICE REPORT for week ending Dec. 7, 1895: Deaths under 5 years, 31; total 78. Births: Male 43, female 41; total 84. Contagious diseases: Diphtheria: Last report 38, new cases 26, recovered 25, died 9, now sick 30. Scarlet fever: Last report 19, new cases 11, recovered 9, died none, now sick 21. Small-pox: Last report 2, new cases none, recovered 1, died none, now sick 1.

St. Louis Notes.

WEEKLY REPORT OF THE HEALTH OFFICE.—Report shows a continuance of the direful effect of diphtheria in the occurrence of 17 deaths, and 4 deaths attributable to croup. There were 2 deaths from scarlatina, 4 from typhoid, and 1 from cerebro-spinal fever during the week.

THE ST. LOUIS MEDICAL SOCIETY.—The program for Dec. 7 announced a continuance of the discussion of the subject of hematomyelia; demonstrations of a method of diagnosticating diabetes by the condition of the blood, by Dr. Ludwig Bremer; and a paper on "How to Cure Acute Middle Ear Disease more Quickly," by Dr. Robert Barclay. Dr. Bremer's demonstration was most interesting as bearing upon the possibility of detecting diabetes under circumstances where there was an object in concealing the disease, as in examination for life insurance. The method consists of a staining of the blood which produces a marked macroscopic differentiation between normal and diabetic blood. It was claimed that after sugar had ceased to appear in the urine as a result of dietetic measures, by this method it could still be detected in the blood.

THE CITY BOARD OF HEALTH has framed a resolution looking to the appointment of a corps of competent physicians whose duty it shall be to make daily visits to the public schools and examine all ailing children, and children that come from homes where sickness exists. The prevalence of diphtheria is taken as the warrant for this measure.

THE HEALTH COMMISSIONER has caused to be printed for gratuitous distribution a pamphlet devoted to a popular exposition of the means of preventing, avoiding, and suppressing communicable diseases, with a resumé of the laws respecting the duties of physicians when in attendance upon cases of contagious disease, as well as of the city ordinances related to the duties of the principals and teachers of private and public schools in such cases. Diphtheria is first given attention, and then follow scarlet fever, tuberculosis, smallpox and typhoid fever. The public diffusion of knowledge of the duty of physicians and teachers in cases of contagious disease will assist both classes in the performance of what is often a disagreeable task because of the frequent dissatisfaction arising out of the necessity to placard a house or to exclude children from school. The pamphlet is most opportune, and can not fail to have a decided influence now and hereafter in restricting the spread of disease.

THE MISSOURI STATE UNIVERSITY LABORATORY is now well started in the work of producing the antitoxin of diphtheria, under the approval of the State Board of Health. The Board is also taking steps to collect statistics concerning diphtheria and the results of the new treatment.

THE MARION SIMS COLLEGE has been made defendant in a suit to recover anatomic and pathologic specimens, by Dr. Louis Bauer. The college asserts that Dr. Bauer donated the specimens in question to the college museum, and therefore refuses to release them until ownership is proved.

THE BARNES MEDICAL COLLEGE has broken ground on Garrison Avenue for its new building.

A NEW LAW concerning the punishment of crimes committed by persons under the age of 18 has received its first application here during the week, and has given rise to some discussion. The law is framed to prevent the commitment of youthful criminals to the penitentiary, and to place them in the Reform Schools. There can be no question of its general wisdom in cases of minor crimes; but it is pointed out that a boy just under 18 can commit murder in the second degree, and the crimes of arson, criminal assault, and robbery in the first degree, and his punishment be fixed by the law at only three years in the Reform School.

THE ANNUAL REUNION of the editorial staff of the *Medical Fortnightly* will take place at the Mercantile Club, Thursday evening, Dec. 12.

Washington Notes.

WEEKLY REPORT OF THE HEALTH OFFICE.—The report of the Health Office for the week ending Nov. 30 is as follows: Number of deaths (still-births not included): White, 63; colored, 44; total, 107. Death rate per 1,000 per annum: White, 17.5; colored, 26.0; total, 20.2. Death rate per 1,000 per annum corresponding week last year, 16.2 A slight rise took place in the number of deaths reported at the Health Department during last week as compared with the preceding week. The mortality was 107, as against 99 reported the week before. The annual death rate was 20.2, which is 3.6 below the annual average for the District of Columbia. The notable feature of the week's health history is the continued abeyance of the dangerous contagious diseases, there having been but one death from diphtheria. The mortality from brain maladies reached 10, of which 5 were from apoplexy. There was a material increase in the deaths from acute lung diseases, 16 of them being from pneumonia and 7 from congestion of the lungs. The deaths from typhoid fever were 4, as compared with the same number the preceding week, while in the corresponding week of last year, there were 5 deaths. Aside from these exceptions, the general health of the city is favorable, with an annual death rate materially below the normal.

GOLD MEDAL FOR DR. TAYLOR.—Dr. Thomas Taylor, of this city, has recently received through the Georgetown custom house a gold medal, which was awarded him by the International Society of Hygiene in recognition of the value of his original investigations on butters and fats and the edible mushrooms of the United States in the interest of hygiene. Dr. Taylor furnished by request a paper which was read at the last annual meeting of the society, held in Rome, Italy, 1894.

WASHINGTON BOARD OF TRADE.—At a recent meeting of the Board of Trade Dr. Samuel C. Busey was elected a member of the Board of Trustees. Dr. W. P. C. Hazen has been added to the Committee on Public Health. Acting on the recommendation of the Committee on Public Health the Board has appointed a Special Committee to prepare a sanitary code for the District. The medical men on the committee are: Drs. Geo. L. Magruder, Chairman, and Health Officer W. C. Woodward.

WHISKY INSPECTION.—The chemist of the District has completed an analysis of fifty specimens of whisky secured by the Excise Board. The research shows an entire absence of

strychnin and nitroglycerin. The usual adulterations found were water, red pepper, burnt sugar, and in a few cases traces of fusel oil. The results are better than were expected.

Medical Society of the District.—At the regular meeting of the society held on the 4th inst., the clinical aspect of diphtheria treated by its antitoxin was discussed by Drs. C. W. Richardson, S. S. Adams, Kinyoun, Walter Reed, W. W. Johnston and others.

The Woman's Dental Association.—The Woman's Dental Association, at its monthly meeting, held at the residence of Dr. Jessie Kappeler, discussed a constitution and by-laws, and then adjourned to meet the first Monday in January.

The Sewer Bond Bill for the District.—Senator Proctor has re-introduced into the Senate a bill introduced in the last Congress by Mr. Harris which provides for continuing a system of trunk sewers in the District of Columbia, for completing the system of sewage disposal, and to protect against floods. The bill provides that the treasurer of the United States shall carry out the provisions of an act entitled: "An act to lay out a system of highways in that part of the District of Columbia lying outside of the cities," approved March 2, 1893. The bill authorizes the Secretary of the Treasury to make available without delay a sum not to exceed $2,650,000. The bill formerly introduced by Mr. Harris fixed the sum to be expended for this purpose at $1,500,000, and further provided that it should be expended by the Commissioners of the District of Columbia. In order to secure money necessary to defray the cost and expense of works authorized by this act, the Treasurer of the United States is authorized to cause bonds of the District of Columbia to be prepared in denominations of $10,000, $1,000, $100 to the amount of $7,500,000, bearing date Jan., 1896, and to be payable fifty years after date, bearing interest at 3 per cent. per annum.

Medical Practice Bill.—Senator Harris has introduced a bill into the Senate to regulate the practice of medicine and surgery in the District, and provide penalties for its violation. The board of examiners will be a mixed one, being made up from the regular, homeopathic and eclectic schools.

Typhoid Fever Report.—Dr. Geo. M. Kober, who was appointed by the Health Officer to investigate 500 cases of typhoid fever reported during the past year, reports as follows with recommendation: Of the cases selected, 436 were contracted at home, and the remaining 64 outside of the city limits. Of the cases contracted, 289 were consumers of well water, 132 consumers of Potomac water, 5 of spring water, 3 of Columbia lithia water and 3 consumers of melted Kennebec ice, and while many of the consumers of well water also used Potomac water, for reasons already given, the principal water supply during the heated term was derived from the pumps. Of the 421 infected houses, 261 had sewer connections, 152 had privies, 2 had cesspools, 4 had surface privies or sinks, and 2 had no privies. The Board also recommends the closing of every well in the District wherever a better water supply can be obtained, the completion and extension of sewers, the abandonment of all box privies, stringent laws for the prevention of soil pollution, a rigid inspection of box privies in suburbs, the improvement of the Potomac water by filtering basins, and extension of supply to the suburbs. Also, measures to improve the sanitary condition along the Potomac and Eastern branch, for reclamation of stagnant and polluted marshes, and the prompt disposal of the sewage; enactment of a law requiring notification to the Health Officer of all cases of typhoid fever and other infectious diseases; a rigid enforcement of the building regulations requiring the cementing of cellars and basements, and the systematic inspection of dairies. As a preventive measure thorough disinfection of the excreta from typhoid fever patients, and greater care on the part of those connected with the sick, together with boiling the water and milk supply is recommended.

Washington Obstetrical and Gynecological Society.—The 236th meeting of the society was held on the 6th inst. Dr. F. S. Nash (late of U. S. N.) read a very flowery essay entitled "A Plea for the New Woman and the Bicycle." Dr. Bromwell reported a successful case of placenta prima—both mother and twins were saved, notwithstanding there was only one placenta, a battledoor. A full and instructive discussion followed on both subjects.

Dr. Barker's Banquet.—Dr. H. H. Barker entertained some of his medical friends at "Over Look Inn" on the 3d inst.

Philadelphia Notes.

University of Pennsylvania.—The Hospital of the University of Pennsylvania has had its facilities enlarged by the addition of a new wing, known as the William Pepper Laboratory for Clinical Medicine. This new department owes its existence to the liberality of the former Provost who desires to commemorate in this tangible manner the service rendered by his father to clinical medicine. A letter was read from Dr. Pepper, which contains the following reference; "My father, the late William Pepper, held the chair of the theory and practice of medicine in the University of Pennsylvania from 1860 until the spring of 1864, when he was forced to resign by the progress of the disease which caused his death on Oct. 10, 1864, in the 55th year of his age. Already at that time a few young men had formed the definite hope of reforming the system of medical education in America, and of placing it on the sound basis of clinical teaching. I can say for some of them, including my brother George, who died in 1872 at the of 32 years, after a brilliant and all too short career, that the eloquent advocacy of clinical teaching and its effective application by my father supplied at once the inspiration and the exemplar. Both father and son wore themselves out in the service of humanity and science and fell victims to the terrible scourge of pulmonary consumption." This laboratory is extended exclusively for post-

THE WILLIAM PEPPER CLINICAL LABORATORY.

graduate research in bio-chemistry, histology, bacteriology and allied subjects connected with the causes and nature of disease. The building and equipment cost over $25,000, the remainder of Dr. Pepper's gift of $50,000 being held as a nucleus for an endowment, which it is confidently expected will soon be raised to two hundred thousand dollars, all of which will be needed in order to establish the laboratory upon a permanent foundation and meet current expenses. The opening exercises were held Dec 4, being held in the clinical ampitheatre of the hospital. Addresses were delivered by Dr. John S. Billings, Director of the Hospital and Professor of Hygiene, who prepared the plans for the laboratory, by Prof. Wm. H. Welch of Johns Hopkins University, and by Provost Harrison. It was stated that no hospital had ever received a specific gift for the construction and maintenance of a separate building to be devoted entirely to chemical, microscopical, and bacteriological investigations and to post-graduate teaching of clinical laboratory methods.

The laboratory building is connected on the west side with the hospital and with the several floors by inclosed corridors. It is located on an eligible site on the corner of 36th and Spruce streets, West Philadephia. The building is 62 feet long by 42 feet wide, and four stories high, with a basement cellar. It is built of brick and terra cotta on a stone base to the first floor, with a green slate roof. On the ground floor there are three rooms. The one on the southwest is specially arranged for chemic investigation. It is not the intention to follow the ordinary routine of chemic analysis

and investigation here, but only the practical study of the chemic processes taking place in the human body in health and disease. Adjoining the chemic room on the north is the room devoted to bacteriology, the most active department on account of the importance which bacteriologic investigation has attained in recent years. Close attention will be devoted in this work to a study of the conditions under which bacteria thrive and the influences that can be brought to bear to cause their destruction. The room is equipped with microscopes of the highest power, and large incubating ovens in which the microörganisms can be safely cultivated. The rooms of the Director and Assistant Director, on the second floor, will be used as offices and for their own personal studies. On the third floor there is a single large room which will be used in teaching the post-graduate work requiring the aid of the laboratory. There are four rooms on the fourth floor. One of them is fitted up as a library, and will be used as a meeting-room for the Fellows and Associates of the laboratories. At the head of the staff is Dr. William Pepper, Director. The Assistant Director is Dr. Alfred Stengel, and instructor in medicine and assistant physician to the University Hospital. The members of the staff are trained specialists, and are as follows: Chemical Department, Dr. Casper Wistar Miller and Dr. George Stanley Woodward; Microscopic Department, Dr. Alonzo E. Taylor, Dr. Thomas S. Kirkbride, Jr., Dr. J. Dutton Steele; Bacteriologic Department, Dr. Samuel S. Kneass; Physical Department, Dr. Joseph Saylor, Dr. David L. Edsall, Dr. Samuel McClintock Hamil.

A BANQUET and testimonial was given in honor of Dr. John S. Billings, who has recently removed his residence to this city and been appointed to the new chair of Hygiene in the Faculty of the University of Pennsylvania; he is also Director of the University Hospital. The dinner was given at the Hotel Bellevue, Philadelphia, Nov. 30, 1895, Dr. L. Wier Mitchell presided as chairman and speeches were made by Drs. J. M. DaCosta, S. Weir Mitchell, John S. Billings, J. R. Chadwick of Boston, Robert Fletcher of Washington, A. Jacobi of New York, and William Osler of Baltimore. A list of foreign contributors were read and a cheque for the amount of $10,000 was given to Dr. Billings with some most appropriate remarks by the Chairman.

THE annual meetings of the Geological Society of America, the American Society of Naturalists, the American Physiologic Society, the Association of American Anatomists, and of the American Psychological Association will be held in Philadelphia, on Dec. 26, 27 and 28, in the halls of the University of Pennsylvania. Prof. E. D. Cope is Chairman of the Committee on Arrangements, Dr. Horace F. Jayne, Treasurer, and Persifer Feazle Secretary. The remaining members being Drs. Harrison Allen, Edward J. Reichert, and W. R. Newbold.

AN UNUSUAL case was reported to the Academy of Surgery by Dr. Thos. G. Morton at its December meeting. A healthy woman, 34 years of age, engaged in house work, sneezed violently and soon afterward appeared much prostrated. A few hours later she was taken to the Pennsylvania Hospital in a state of collapse, and she soon died. At the autopsy, there was found in the superior aspect of the stomach, near the smaller curvature, a ragged opening as large as a five-cent piece, but without much expulsion of contents of stomach owing to location. An unhealed ulcer of smaller size was also found in the vicinity of the first one. There had probably been adhesion between the stomach and diaphragm as a result of the ulceration process, and this adhesion was torn apart by the violence of the movement of the diaphragm in the art of sneezing.

AT THE College of Physicians, Dec. 4, Dr. John B. Deaver read a communication on "Some Salient Points in the Diagnosis, Pathology, and Treatment of Appendicitis." The paper was based upon two hundred operations for appendicitis performed by the lecturer with only two deaths, both of which occurred in the first series of one hundred cases, giving a mortality of 1 per cent. after abdominal section for appendicitis. He bases the diagnosis upon the three cardinal points of suddenness of onset, rigidity of muscles upon right side, and pain and tenderness in right inguinal region. He had found some cases with pain complained of on left side, and in these cases he had found the appendix toward the left side of the pelvic region. The abscess may discharge into the bladder; therefore, the presence of pus in the urine does not always decide the diagnosis in favor of pyonesis. When the tip of the appendix occupies the pelvis, symptoms of vesical irritability occur and are of diagnostic value. He advocated early operation with removal of appendix before the stage of pus-formation. He did not think it wise to operate upon a patient in collapse, but where an operation is to be done he advised a thorough operation with removal of the appendix in all cases. The practice of simply opening the abscess and draining, he pronounced incomplete surgery. He said in conclusion that there is no medical treatment that will cure appendicitis, and quoted Osler's remark that, in these cases, "the surgeon is often called too late but never too early."

THE PUBLIC SERVICES.

Surgeon George W. Stoner, M.-H. S., sailed for Europe on the *Kaiser Wilhelm II*, last week. He will be absent several months.

Army Changes. Official list of changes in the stations and duties of officers serving in the Medical Department, U. S. Army, from November 30, 1895, to December 6, 1895.

Capt. William H. Arthur, Asst. Surgeon, is relieved from duty at Ft. Columbus, N. Y., and ordered to Ft. Myer, Va., for duty.

First Lieut. Jonn S. Kulp, Asst. Surgeon, leave of absence granted is hereby extended one month.

Navy Changes. Changes in the Medical Corps of the U. S. Navy for the week ending December 7, 1895.

Asst. Surgeon George C. Hubbard, detached from instruction at the Naval Laboratory, New York, and ordered to the "Vermont."

P. A. Surgeon E. R. Stitt, detached from the "New York," and ordered to the coast survey steamer "Bache."

P. A. Surgeon G. H. Barber, detached from the "Bache," and ordered to the "New York."

Marine-Hospital Changes. Official list of changes of station, and duties of Medical Officers of the U. S. Marine-Hospital Service, for the fifteen days ended November 30, 1895.

Surgeon C. S. D. Fessenden, placed on waiting orders, Nov. 22, 1895.

Surgeon F. W. Mead, granted leave of absence for thirty days, Nov. 21, 1895.

P. A. Surgeon W. P. McIntosh, to proceed from Boston, Mass., to Portland, Me., for temporary duty, Nov. 25, 1895.

P. A. Surgeon W. J. Pettus, relieved from duty at Buffalo, N. Y., and directed to proceed to Cape Charles Quarantine, and assume command of Station, Nov. 16, 1895.

P. A. Surgeon G. M. Magruder, granted leave of absence for thirty days, Nov. 20, 1895.

P. A. Surgeon T. B. Perry, relieved from command, Cape Charles Quarantine, and directed to proceed to Buffalo, N. Y., and assume command of Service, Nov. 16, 1895.

P. A. Surgeon W. G. Stimpson, granted leave of absence for thirty days, Nov. 20, 1895.

Asst. Surgeon L. E. Cofer, placed upon waiting orders from Dec. 1, 1895, Nov. 21, 1895.

Asst. Surgeon J. A. Nydegger, when relieved from temporary duty at Mobile, Ala., to rejoin station at Savannah, Ga., Nov. 27, 1895.

Asst. Surgeon W. J. S. Stewart, granted leave of absence for fourteen days, Nov. 29, 1885.

Asst. Surgeon E. K. Sprague, relieved from temporary duty at Key West Quarantine, and directed to rejoin his station at Mobile, Ala., Nov. 27, 1895.

Asst. Surgeon Emil Prochazka, to proceed from Detroit, Mich., to Buffalo, N. Y., for temporary duty, Nov. 16, 1805.

Asst. Surgeon J. B. Greene, granted leave of absence for thirty days, Nov. 20, 1895.

Change of Address.

Blodgett, A. G., from West Brookfield, Mass., to Ware, Mass.
Chancellor, E., from 515 Olive Street, St. Louis, to 613 Pine Street.
Werner, O. E., from Tigerton to Brillion, Wis.
Woodbridge, John Eliot, from Youngstown, Ohio, to 637 Prospect Street, Cleveland, Ohio.

LETTERS RECEIVED

Ashton, W. W., Alexandria, La.; Andrews, Edmund, Chicago.
Brauns, E., Chicago, Ill.; Battle Creek Sanitarium, Battle Creek, Mich.; Barbour, Llewellyn P., Tullahoma, Tenn.
Conibear, W. H., Morton, Ill.; Caverly, C. S., Rutland, Vt.; Cutter, J. A., New York, N. Y.; Cochran, Jerome (2), Montgomery, Ala.; Conner, Leartus, Detroit, Mich.; Chancellor, Eustathius, St. Louis, Mo.
Dakin, F. C., Evanston, Ill.; Dudley, E. C., Chicago.
Edwards, John B., Milwaukee, Wis.
Forline, H. H., Chicago, Ill.; Fehr, Julius, Hoboken, N. J.
Gouley, J. W. S., New York city; Galloway, D. H., Chicago.
Hummel, A. L., Advertising Agency, New York, N. Y.; Haughton, R. E., Richmond, Ind.; Hill, Julian P., Buffalo, N. Y.
Jones, Joseph, New Orleans, La.; Jordan, J. R., Montgomery, Ala.
Kober, Geo. M., Washington, D. C.; Kime, R. R., Atlanta, Ga.
Lusk, Z. J., Warsaw, N. Y.; Loeb, H. W., St. Louis, Mo.; Lilly, Eli, & Co., Indianapolis, Ind.; Lehn & Fink (3), New York, N. Y.
Macey Company, Fred. The, Grand Rapids, Mich.; Maltine Mnfg. Co., New York, N. Y.; Mitchell, W. S., Susquehanna, Pa.; Manley, Thos. H., New York city; Montgomery, E. E., Philadelphia, Pa.
Nihart, G. W., Meudon, Mich.; Norton, A. C., Rockwell City, Iowa.
Parke, Davis & Co., Detroit, Mich.; Pugh, F. H., Bryan, Ohio; Parker, E. F., Charleston, S. C.; Pattee, A. F., Boston, Mass.; Pettit, J. W., Ottawa, Ill.; Parish, Orleans, New Orleans, La.; Paquin, The Paul, Laboratories (2), St. Louis, Mo.
Rowe, S. B., St. Louis, Mo.; Reed, R. Harvey, Columbus, Ohio; Risley, Samuel D., Philadelphia, Pa.
Shlensky, I., Wilmington, Del.; Schimmell, M. S., Baltimore, Md.; Silver, D. R., Sidney, Ohio; Scherer, Otto, Detroit, Mich.; Sourwine, J. D., Indianapolis, Ind.; Spaulding, Warren C., New York city; Smart, Chas., Washington, D. C.; Senn, N., Chicago; Sniter, A. Walter, Herkimer, N. Y.; Smith, Q. Cincinnatus, Austin, Texas; Simpson, Wm. K., New York city.
Utley, H. M., Detroit, Mich.
Williamson, A. R., New London, Conn.